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DESIGN OF FLEXIBLE AIR PERMITS

**OPERATING PERMITS PROGRAM
WHITE PAPER NUMBER 3**

**U.S. ENVIRONMENTAL PROTECTION AGENCY
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DESIGN OF FLEXIBLE AIR PERMITS

I. Introduction/Overview

SUMMARY: Flexible air permits can provide industry with more operational flexibility without sacrificing environmental protection. This guidance is intended to help you, the State and local permitting authorities, design flexible permits for sources subject to title V of the Clean Air Act. While not mandatory, we would encourage you to use this guidance where allowed by your regulations and as your resources and needs dictate. Ultimately, you must decide in each case whether the approaches in this guidance or other approaches relying on the basic concepts contained herein are appropriate. In no instance does the guidance imply that sources may not comply fully with any applicable requirements¹; it only presents more flexible approaches for doing so.

Purpose of this Guidance

This guidance focuses on how you can design flexible operating permits, within the scope of title V of the Clean Air Act and the operating permits regulations that we promulgated at 40 CFR part 70. The guidance shows how you can opt to provide sources with the flexibility to change modes of operation, as the nature of their business requires, without being unnecessarily impeded by the terms of their operating permit. We also intend for this guidance to advance other high priority goals within the Agency to encourage pollution prevention, to assure adequate public participation, to promote equal or better environmental protection, and to facilitate opportunities for sources to comply in a smarter, more efficient fashion.

What this Guidance Covers

While addressing several approaches for providing operational flexibility, this guidance focuses primarily on advance approvals since this is the most versatile and potentially useful approach. After first considering the question of who might want to utilize flexible permit conditions, the guidance covers the initial step of making sure the permit is well written to eliminate unnecessary constraining provisions. This guidance discusses the many considerations and factors relevant to designing a permit that allow for advance approvals of modifications or new emissions units so changes may be made without a permit revision. The guidance then addresses a mechanism designed to define when a source becomes subject to requirements, which can be an important complementary concept in being able to provide for advance approvals. For those changes that cannot be accommodated by advance approvals, or for which requirements

¹For convenience sake, the term “applicable requirements” henceforth refers to the combination of all applicable requirements as defined in section 70.2 and other title V permit terms relevant to the advance approved changes such as periodic monitoring.

cannot be avoided, this guidance discusses where and how you can expedite the permit revision process. Finally, the guidance discusses how to design flexible permit conditions such that compliance with all applicable requirements can be assured as a practical matter. Included herein are a number of examples to illustrate implementation of the various flexibility-providing mechanisms to give you a better understanding of their use.²

Key Components for Flexibility to Work

Advance approval of changes is the incorporation into the source's title V permit of terms addressing future changes anticipated at the source such that no title V permit revision or other approval is needed from you before the source can make these changes. To be approvable, a title V permit containing an advance approval must include: (1) a description of the advance approved changes and a limitation on their magnitude; (2) the relevant applicable requirements which apply to the advance approved changes; (3) other terms as necessary to link the changes to their applicable requirements and to assure compliance with them at all times, and (4) other terms to assure that requirements not appropriate for advance approval do not apply to the advance approved changes (see section V.). Necessarily then, all applicable requirements applying to the change must be written such that they can be advance approval (i.e., nothing in their design prohibits their being advance approved). Also, you must first approve the advance approval where needed under other requirements, such as the new source review (NSR) program.

The real utility of advance approvals is for those industries that characteristically make many changes each year where the source cannot determine the specific changes until shortly before it needs to make them, but the changes are all within a defined category of changes for which all requirements will be well known. Advance approvals involving such defined categories typically include one or more emissions limits (known as emissions "caps") applying over the whole site to protect ambient air standards, to define when a source would be subject to additional control requirements, and to bound the magnitude of the emissions associated with the advance approved changes. For this type of advance approval to work, the title V permit must contain and/or require the following types of information whose combination will allow you to determine whether the specific operations being conducted at the site are in compliance with applicable requirements.

- Advance approval of a defined category of changes in the title V permit. The permit must contain a description of all the changes that would fall within the defined category being advance approved, the applicable requirements that will apply to any change within that

²In a number of places, this guidance refers the reader to other sections of this document, to Clean Air Act sections, or to sections of our regulations. These references should be understood to indicate where a topic will be discussed in further detail herein or where more detailed information is available elsewhere to the reader. These references should not be interpreted to indicate that the reader must read those references to understand this guidance.

category, and other terms as needed to assure that the source will comply with the applicable requirements.

- Monitoring, recordkeeping, and reporting data. The permit must require that data be collected by all applicable monitoring, testing, recordkeeping, and reporting requirements. In addition, the permit must require periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of a source's compliance terms, where applicable requirements fail to have periodic testing or instrumental or non-instrumental monitoring. Generally, flexible permits must also require additional data collection as needed to quantify with certainty all emissions occurring under an emissions cap.
- On-site log of activities. The source must maintain a contemporaneous log of activities so an inspector will always be able to determine the exact operations and whether the source is fully complying with applicable requirements. Changes to this log will be available semiannually to the public through you.
- Advance notices. The source must also submit a notice to you before it puts a new advance approved emissions unit into operation.

Anticipated Environmental Benefits from Flexible Permits

The insights on which this guidance is based have largely come from an ongoing program of pilot permitting projects known as the pollution prevention in permitting program (P4). Based on their initial experience, participating permitting authorities have found that flexible permits can be extremely valuable in providing the following benefits.

- Improved knowledge of the source's emissions and of its compliance status through data collected from the application of continuous emissions monitoring systems, or their equivalent.
- Achievement, in some cases, of greater environmental protection by reduced overall plant emissions.
- Increased opportunities to use pollution prevention. While not mandatory, pollution prevention often enhances operational flexibility since reducing current actual emissions effectively creates emissions reduction credits, allowing sources to adjust their processes as necessary to remain under an emissions cap.³

³Sustained growth in the form of increased production (per unit of pollution) also is likely to occur under such caps through pollution prevention. For example, our experience in P4 pilots has shown such initial results as 17 percent reductions in pollutant emissions per unit and up to a 50 percent reduction in overall VOC emissions. In some cases, certain types of flexibility are achievable only through a pollution prevention-based approach.

Meaningful Public Participation

We intend under this guidance that the public be provided important opportunities in the review of draft flexible permits and subsequently in the oversight of issued permits. We recommend that you hold an up-front meeting with the public prior to the start of any comment period wherever you anticipate significant concerns over the issuance of a particular flexible permit. In general, we expect the review and implementation of flexible permits to provide the following.

- A better (i.e., 5-year) view of source activities (since each proposed advance approval must describe the type and magnitude of the potential emissions increases that can occur) and a more comprehensive, and often better, knowledge of emissions from the entire plant (e.g., a plant-wide emissions cap, including grandfathered units).
- A better perspective of the overall appropriateness of the type and amount of planned growth on which the public can comment at a time when there is an excellent opportunity to influence the direction of the proposed changes.
- Improved access through you to ongoing information detailing how the flexibility provisions have been implemented (e.g., changes recorded semiannually in on-site logs and notices submitted prior to the operation of advance approved new units).

When Flexible Permitting May Not be Appropriate

We recognize that there will be several situations where a flexible permitting approach may not be appropriate or necessary. We advocate that you pursue flexible permits where the anticipated benefits justify the extra burdens needed to design and implement one.

- The flexibility approach must be consistent with each applicable requirement relevant to the changes being permitted, such as NSR.
- Certain applicable requirements and source type combinations may already allow for sufficient flexibility.
- Flexible permits, in providing the necessary accountability, are often too limiting for many sources (e.g., advance approvals routinely require the establishment of one or more plant-wide emissions caps which act to freeze emissions and overall capacity use at current levels).
- To avoid future reopening of the permit to correct problems, flexible permits should not be granted to sources where the basis for practical enforceability is uncertain.
- Up-front design costs of several flexible permits are typically higher for both you and the source (i.e., where it is necessary to determine multiple strategies which are needed to address

different changes, applicable requirements, and control/monitoring combinations in the advance approval and to determine whether your rules are open to such approaches).

- Future demonstrations of compliance with the flexibility terms can mean more data collection, validation, and reporting.

Funding for Flexible Permitting

Any additional resources you would need to develop flexible permits are title V program costs that are appropriately addressed by permit fees. Where your current funding levels are not adequate and you wish to pursue flexible permitting, you should collect additional permit fee revenue. A number of approaches are available for you to do so, including an adjustment to your fee schedule to increase revenues and/or adoption of a policy to receive supplemental fees for additional services rendered to requesting sources.

Applicability of Guidance to Minor Sources

While this guidance is focused on how flexible permits can be designed for part 70 sources, it is appropriate to consider providing flexibility to minor sources, who may also have significant operational flexibility concerns. The mechanisms described in this guidance are not uniquely tied to title V permitting. We, therefore, encourage you to consider providing sources not subject to the title V program with flexibility similar to that described for major sources in this guidance. In particular, you could establish similar advance approvals using other available permitting mechanisms such as minor NSR permits and federally enforceable State operating permits.

Relation to White Papers 1 and 2

This guidance furthers our commitment to successful implementation of title V. It is intended to supplement, not supersede, the two previous White Papers. The policies set out in this paper are intended solely for guidance, do not represent final Agency action, and cannot be relied upon to create any rights enforceable by any party.

II. When Should Flexible Permits be Considered?

The first step in determining whether a flexible permit is needed is to analyze the operational flexibility needs of the source (e.g., the likelihood of needing to make frequent permit revisions before several types of operational changes can be made). The need for permit flexibility will vary from source to source depending on the frequency of operational changes, the relative need for certainty in planing future operations, and the business-related need to respond to market conditions and make changes expeditiously. Many sources may find that they do not need special provisions for operational flexibility provisions in their permits because they are not driven by the marketplace to make quick changes to their products or services. On the other hand, several

industries (e.g., pharmaceuticals, computer chip manufacturers) have indicated that the nature of their industry compels changing production quickly and often to meet changing market conditions. Unless the title V permit is designed to allow many of these changes to occur without a permit revision, these sources predict that they will be impeded from making timely response to the marketplace and you will be faced with the recurring need to process permit revisions.

Various types of sources may indicate to you that their permit needs to provide for operational flexibility. You will need to work with each source to determine the actual degree of flexibility needed and the appropriate mechanisms to use to provide that flexibility. The following list of common changes are those that may require a permit revision and/or approval prior to implementation:

- (1) adding a new emissions unit or new component equipment;⁴
- (2) reconstructing an emissions unit;
- (3) modifying emissions units (e.g., redesigning for efficiency, redesigning for new material or products, modifying materials use or storage and/or production rate, and replacements);
- (4) relocating/reconfiguring equipment;
- (5) rerouting emissions to another control device;
- (6) adding a new control device; and
- (7) conducting specific activities (e.g., factory experiments, remediation, test burning, emergency generators, and pilot operations).

If this first step results in a determination that operational flexibility in a title V permit is needed, it should be followed by a determination of whether “smart” permit writing is adequate to meet operational flexibility needs, or whether advance approvals are also appropriate to avoid frequent permit revisions. Finally, you should also consider whether you may need to include permit conditions which would allow expediting permit revisions for changes that can not be fully advance approved. These three topics are discussed in sections **III.**, **IV.**, and **VI.**, respectively.

III. How Can Permits Be Written to Preserve the Flexibility Already in Applicable Requirements?

Smart Permit Development

You can often minimize the number of times the source will have to revise its permit by writing a “smart permit.” Such a permit essentially allows a source to make changes as expeditiously as would be allowed under the relevant applicable requirement(s) alone. In other

⁴The term “component equipment” as used in this document means pieces of equipment which may not be individually regulated but which in aggregate comprise an emissions unit that is subject to one or more applicable requirements. New component equipment means such equipment added to a site as or replacements or additions to existing production equipment which may change, or trigger new, applicable requirements.

words, the permit does not prevent the source from operating as flexibly as the applicable requirement(s) allow by including restrictive terms in the permit that are not included in the applicable requirement(s). Only after completing this exercise should you proceed to see whether and to what degree the other flexibility mechanisms subsequently discussed are needed to provide an additional level of operational flexibility and planning certainty to the source. We believe in general that smart permits will reduce unintended permit revision burdens on you and sources and will completely satisfy flexibility needs for many sources. The first two White Papers on the operating permits program describe many smart permitting techniques.

Replacement Conditions

In addition to the techniques mentioned in the previous White Papers, we believe that another smart permit technique is generally available which involves using replacement conditions to revise certain minor NSR permit terms into a more flexible format. All applicable requirements, including the terms and conditions of existing NSR permits issued pursuant to the State implementation plan (SIP), must be included in the title V permit. Some of the terms in previously issued minor NSR permits may severely restrict the operational choices that a source can make. Example terms are:

- (1) those that limit the volatile organic compound (VOC) content of coatings and solvents instead of limiting VOC emissions;
- (2) specify or prohibit the use of certain coatings and solvents; or
- (3) require or prohibit specific conditions, rates of production, types of inputs or products, or rate of input.

Additional flexibility might be accomplished by fashioning replacement conditions which:

- (1) retain the required emissions limit;
- (2) delete the specific restrictions on materials usage and/or production; and
- (3) add a mass balance-based formula which determines emissions replicably by interrelating the proven combined effect of any control devices and the relevant operating parameters (e.g., effects of specific materials used, production rates, and capture and control efficiencies, where relevant).

Under this approach, the source would have to maintain a log of the inputs to the relevant formulas and the resultant calculations for the relevant time periods. By not imposing limitations on individual materials usage or VOC content, significant flexibility is afforded to adjust operations, to reformulate the process materials, to reduce emissions, and to allow for possible pollution prevention and increased production.

The extent to which restrictive terms in minor NSR permits can be revised into a more flexible format depends on the specific reasons that the limitations were included. Where an NSR permit incorporates the restrictions of an applicable regulation (e.g., an NSPS or a SIP rule), revision to a more flexible format is not possible. A voluntary limit on potential-to-emit (PTE) is

an example of a permit term that does not have a corresponding regulation and that is sometimes written more restrictively than necessary to ensure practical enforceability. Where not barred by a particular applicable requirement, a more flexible format (i.e., replacement conditions) may, in many cases, preserve the practical enforceability of a limit previously taken to restrict the PTE of an emissions unit.

Where compliance with underlying requirements can be assured with more flexible permit terms, you may be able to revise minor NSR permit terms into this more flexible format prior to their incorporation into the source's title V permit. You may accomplish this efficiently by using the parallel process mentioned in White Paper Number 1 to modify the minor NSR permit.

Developing replacement conditions to achieve more flexible permit terms must be consistent with guidance given in our June 13, 1989 memorandum entitled "Guidance on Limiting Potential to Emit in New Source Permitting," signed by Terrell E. Hunt, Office of Enforcement and Compliance Monitoring, and John Seitz, Office of Air Quality Planning and Standards. Accordingly, replacement conditions are available to implement the alternative to the daily emissions calculations described in the 1989 memorandum for surface coating operations where production or materials variability precludes the use of operating and production parameters. Replacement conditions also meet the need for readily verifiable and enforceable restrictions on actual emissions as outlined in the Louisiana-Pacific case, *United States v. Louisiana - Pacific Corporation*, 682 F. Supp. 1122 (D. Colo., October 30, 1987) and 682 F. Supp. 1141 (D. Colo., March 22, 1988).

Case Example for Lithographic Printer

The following example illustrates the general opportunities to develop replacement conditions for a source currently issued an NSR permit with inflexible terms and highly variable operations. Consider a heatset lithographic printing line at a source in an attainment area with an annual VOC emissions limit of 249 tpy. The source is currently subject to conditions limiting operational flexibility similar to those previously mentioned (e.g., specific limits on the type of certain coatings and solvents and the rates of production and inputs) which were imposed to limit the source's PTE to the 249 tpy. The printer has demonstrated to you that it has highly variable production rates and materials usage, thus qualifying for the alternative to daily data collection provided for in the 1989 guidance mentioned above. Where these conditions unnecessarily restrict the source's ability to adjust production levels and material use, you might choose to revise the NSR permit containing these conditions in your applicable minor NSR revision process. In particular, you might replace these conditions with the following limits and formulae which still meet the 249 tpy limit but allows flexibility in adjusting operating conditions:

To determine compliance with the annual emissions limit, VOC emissions from the affected heatset lithographic printing line shall be based on a rolling 12-month total of monthly emissions using formulae (1) through (3). The facility shall record

materials usage and VOC content on a monthly basis to establish the monthly and rolling 12-month total emissions.

$$(1) \quad E_T = E_{M1} + E_{M2} + E_{M3} + E_{M4} + \dots + E_{M12}$$

$$(2) \quad E_{Mn} = E_1 + E_2 + E_3 + \dots + E_n$$

$$(3) \quad E_n = U_n \times V_n \times (1 - R_n/100) \times \{1 - (\zeta_n/100) \times (\hat{i}/100)\}$$

Where:

- E_T = Annual VOC Emissions (tons) as summed from the previous 12 months of monthly VOC emissions;
- E_{Mn} = Monthly VOC Emissions (tons per month);
- E_n = VOC emissions from an individual material;
- U_n = Total usage of the individual material - typically ink, fountain solution, and cleaning solvents - in tons of material per month;
- V_n = Average VOC content of material as determined by EPA Method 24;
- \hat{i} = Control Efficiency (90 - 95% minimum typically required by applicable requirements) as verified during an initial performance test and testing as needed thereafter, and as maintained via parameter monitoring;
- R_n = Amount of VOC retained and not emitted as allowed by our Control Technology Guideline Document for Offset Lithography;
- ζ = Capture efficiency for individual material emitted as determined by EPA Method 204 and maintained via parameter monitoring or as allowed by our Control Technology Guideline Document and Alternative Control Techniques Document for Offset Lithography.

The replacement conditions described above offer a more flexible approach in the form of limitations on operation and production that can be verified monthly through review of records of materials consumption and VOC content. That is, the source would now have increased operational flexibility from its ability to balance increased use of one input to the formula (e.g., use of a higher VOC coating) with decreased use of another (e.g., reduced total usage of other materials). Those conditions allow documentation of materials consumption and VOC content over a monthly inventory, i.e., summation of materials purchased, because values for periods shorter than those associated with materials purchased inventories are extremely difficult to obtain due to low usage rates, the difficulty in accurately measuring partially filled containers, or shared usage of materials between multiple presses. Replacement conditions for this case also allow the source to prorate monthly data to compute daily data. Replacement conditions in this example must:

- (1) contain the previously established annual emissions limitation which can easily and readily be verified on a monthly basis;
- (2) set out the methodology (formula-based) by which emissions from various process materials will be determined;
- (3) be supplemented, in many locations, by additional limitations on control efficiency, fountain solution VOC content, and cleaning solvent VOC content or vapor pressure; and
- (4) ensure that no emissions rate exceeds the level allowed by any applicable requirement.

IV. What Are Advance Approvals and How Do They Work?

Advance approval is the incorporation into a title V permit of terms which authorize specified future changes to occur such that no further approval or title V permit revision is needed before the source can make these changes. To do so, the permit must contain terms that assure compliance at all times with all applicable requirements that apply to the advance approved changes. To be approvable, a title V permit containing an advance approval must include (1) a description of the advance approved changes and a limitation on their magnitude, (2) the relevant applicable requirements which apply to the advance approved changes, (3) other terms as necessary to link the changes to their applicable requirements and to assure compliance with them,⁵ and (4) other terms to assure that requirements not appropriate for advance approval do not apply to the advance approved changes (see section V.). An operational change within the description of advance approved changes that shifts the source to a different applicable requirement, control strategy, and/or monitoring approach contained in the permit would trigger the need to document this shift in the on-site log and to provide an advance notice when certain types of new equipment would be added to the site.

Advance approvals can be used for a potentially wide spectrum of changes, including the addition of specific new process units, modifications to existing units, or even for the addition or modification of units which are not specifically known but which are within a described category of changes. Advance approval of the addition of new air pollution control devices in conjunction with other advance approved process unit changes is also possible where, in advance, the device can be determined to meet applicable requirements and permit terms can be defined to govern the operation of the device.

Fundamental to the utility of the advance approval concept is the ability to apply it to a described category of changes whose compliance with all applicable requirements can be collectively assured. Advance approval of a change at an existing emissions unit, or operation of

⁵Changes not qualifying for advance approval (either because new or different applicable requirements and/or monitoring are now in effect for the change rather than those that were anticipated and addressed in the permit, the change would cause conflict with other terms in the title V permit, or because the scope of the change itself deviates from the described changes that were advance approved), are subject to the applicable NSR, title V permit revision, or section 70.4(b) notice procedures [see section 70.4(b)(12) and (14)].

a new emissions unit, for which a description and all applicable requirements are fully known in advance is a simple matter. The real utility of advance approvals, reflected in the concepts contained in this guidance, however, is for changes that are not specifically well known in advance. As has been previously discussed, there are industries that characteristically make many changes each year where the specific changes are not determined until shortly before the source needs to make them, but the changes are all within a defined category of changes for which all requirements will be well known. Accordingly, you must determine that all applicable requirements are open in a practical way to being approved for changes within the defined category. You must then opt to grant all authorizing advance approvals needed under these requirements (i.e., the minor NSR process) before the advance approval can be complete and be incorporated into the title V permit. In other words, advance approval of changes within a defined category cannot be unilaterally provided in the title V permit if other permit programs apply to such a change. Development of an advance approval must first occur under the other applying programs.

A. Basis Under Current Regulations

Reasonably Anticipated Operating Scenarios Under Title V

Section 504(a) of the Act and section 70.6(a) of the part 70 regulations in general require title V permits to contain terms and conditions sufficient to assure compliance with all applicable requirements. We believe that permit terms based on the concept of advance approvals, applied as described herein, will assure compliance with the associated applicable requirements and are therefore authorized by the provisions noted above. In particular, we believe that advance approvals can be interpreted as a form of reasonably anticipated alternative operating scenarios specifically authorized by section 70.6(a)(9). This section requires that each title V operating permit include terms and conditions for “reasonably anticipated” operating scenarios, if requested by a source.⁶ There is no rigid legal formula for determining when alternative scenarios are “reasonably anticipated” consistent with section 70.6(a)(9). The permit terms needed for alternative operating scenarios to assure compliance with all applicable requirements at all times may, in general, be expected to vary by source category, due to the differing types of emissions units and operating scenarios characteristic of sources.

⁶The requirements governing the establishment and implementation of reasonably anticipated alternative operating scenarios are notably separate from those located in section 70.4(b)(12) which implement section 502(b)(10) of the Act. The latter requires in part an advance notice for all covered changes, provided that the change would not be a title I modification and not exceed the allowable emissions of the permit. The rulemaking promulgating part 70 specifically defined the expectations for a contemporaneous log describing which of the alternative operating scenarios approved in the permit is actually in operation. That rule does not require an advance notice of the change (except where one would be required by section 504(a) or by an applicable requirement). Thus, changes which are authorized to occur as alternative operating scenarios under section 70.6(a)(9) are not subject to the requirements of section 502(b)(10) of the Act and section 70.4 (b)(12).

Accordingly, as reasonably anticipated alternative operating scenarios, advance approvals must be granted (including changes to existing emissions units and the addition of new emissions units) in the title V permit, provided that you: (1) believe your approved part 70 permit requirements and each of your SIP-based applicable requirements applying to the change can be specified in advance; (2) you first act to grant any necessary enabling authorizations under the existing relevant applicable requirements (e.g., granting minor NSR approval to a described category of changes, where applicable); and (3) can approve conditions into the title V permit that meet the criteria for advance approval previously listed in this section **IV**. Once established in the title V permit, a source may switch among these scenarios, without obtaining a permit revision, provided that the source submits to you any required advance notices (discussed below) and, upon changing from one scenario to another, the source records in an on-site implementation log (OSIL) the scenario under which it is operating (i.e., the change is linked to new applicable requirement(s) and related compliance term(s) comprising the relevant operating scenario). Note that advance approved changes, however, require neither a notice nor a log entry when they do not shift the source from its current operating scenario.

Additional Requirements for Certain Advance Approvals

It is important to distinguish two specific types of advance approvals for further discussion. The first category covers operating changes resulting from various reconfigurations or modifications of existing, specified emissions units or the addition of new component equipment that are not described in exact detail in the permit (i.e., a described category of changes). The second category covers the addition of new emissions units and new control devices that are not in service at the time the advance approval is established in the title V permit. For both types of advance approvals, the permit meet the criteria for advance approval previously defined in this section (including any enabling NSR permits issued for the preconstruction approval of the change or described category of changes). In addition, there are requirements specific to the two types of advance approvals identified above..

To advance approve changes to existing emissions units within a described category, the permit must sometimes contain nondiscretionary instructions or replicable operating procedures (ROPs). These ROPs are necessary where shifts in source operations can trigger several different applicable requirements and these requirements allow several options to control and/or monitor emissions to meet them. The ROPs, which you have approved, govern how the changes are linked to applicable requirements and compliance terms (e.g., monitoring provisions and/or control approaches already contained in the permit). Such ROPs must be judged by you to be scientifically sound, consist only of repeatable nondiscretionary steps (such as a mathematical equation), and be operated using only objective data (where data are required). Section **IV.D**. discusses the concept of approving families of alternative operating scenarios into title V permits and the use of ROPs.

For the second category of new emissions units or control devices, you may advance approve these new units and control devices and comply with the requirements of section

70.6(a)(9), and thus section 504(a)⁷ of the Act, provided that, in addition to the requirements previously mentioned, the title V permit requires the source to submit to you an advance notice before adding new equipment which is:

- a. a new emissions unit⁸ which is itself regulated by one or more applicable requirements in the permit⁹;
- b. a new control device;
- c. a new component of an existing emissions unit that undergoes, as a result of this addition, a shift to another set of applicable requirements, monitoring requirement, or required compliance option contained in the permit;¹⁰ and

Consistent with the requirements of section 504(a) of the Act and section 70.6(a)(9)(iii), the permits' description of the advance approved changes must be adequate to define all permit terms which are needed to assure compliance with all applicable requirements. The advance notice referred to in (3) above merely confirms that the particular new equipment addition qualifies for the advance approval and links more specifically a new unit to the terms of the alternative scenario under which it is advance approved. The obligation for advance notice also serves to meet the requirements for monitoring and related recordkeeping and reporting [see sections 70.6(a)(3) and (c)(1)] and to provide certain notices such as those required for new emissions units subject to new source performance standards (NSPS) and maximum achievable control technology (MACT) standards. All advance notices are notably sent to you to

⁷Because advance approvals are based on the authority provided by section 504(a) of the Act, the Act's section 502(b)(10) exclusion of title I modifications is not relevant to the potential scope of situations eligible for alternative operating scenarios. The only limitation imposed by section 504(a) is that permit terms that would advance approve a title I modification assure compliance with all applicable requirements. For example, it may well be possible to define acceptable permit conditions to assure that a change meets a title I modification like a standard promulgated under sections 111 or 112 of the Act, since such standards are relatively well-defined and do not vary over time. In contrast, the requirements for major NSR contain many case-by-case judgments which must be made contemporaneously with the change. For that reason, advance approvals should not be used to authorize a described category of changes subject to major NSR, except in the two narrow circumstances discussed in section **IV.F**. The important point here is that this distinction relates to whether the permit can assure compliance and not whether the approved scenario is a title I modification.

⁸Emissions unit can be defined quite broadly. It can be an entire factory building or a piece of equipment on a line depending solely on what the applicable requirement(s) regulate.

⁹Similarly, in situations where an advance approved operational change would so extensively modify an existing unit that it necessitates a revised description of the unit, as well as causes a shift to another alternative operating scenario in the permit, an advance notice would be necessary.

¹⁰Exceptions to the requirement for advance notices are where the number of notices required for new equipment additions would make this approach administratively infeasible (e.g., new pumps, valves, and flanges regulated under a leak detection and repair (LDAR) standard) or the applicable requirements associated with the new emissions unit would be generally applicable to the site and not apply specifically to the particular piece of equipment.

communicate the required information. The public has access to the notices through you as you receive them. In addition, sources, in making annual compliance certifications, must include certification for any new unit added since the last certification (as well as any other changes made pursuant to the advance approval, including the modification of any existing units) and for the applicable requirement(s) for which it was advance approved.

Advance Approval Under Non-Title V Requirements

Though we believe the flexibility for advance approvals clearly exists under part 70, you must examine your approved operating permits program to determine whether your rules are more restrictive in this regard. You must also perform this type of evaluation for each applicable requirement applying to the changes or described category of changes proposed for advance approval. While some applicable requirements appear to be amenable to advance approval, it may not be easy and/or appropriate to advance approve those which require case-by-case decisions and significant, contemporaneous judgments. We will in this instance grant reasonable deference to you in interpreting your own rules, provided in part that any resulting interpretations are plausible within the language of the approved SIP. Where a concern arises as to whether this guidance is consistent with your EPA-approved rules, we will work with you to make this determination. Sources should be aware, however, that our exercise of discretion does not shield them from citizen suit.

A governing principle is that the process for reviewing and granting an advance approval under a particular applicable requirement must be essentially equivalent in substance and process to that which would have occurred under the traditional approach for issuing this approval. For example, if your rules require a particular described category of changes to be processed as an NSR change (either as a newly issued permit or as a revision to an existing NSR permit) before the source may make these changes, you must first opt to issue or revise the NSR permit to enable the advance approval of the changes. Only then can the NSR-authorized advance approval be incorporated into the title V permit along with other conditions as needed to advance approve the changes relative to all applicable requirements as a comprehensive alternative operating scenario. Where you find that another procedure must take place, e.g., a NSR-approval process, before an advance approval can be incorporated into the title V permit, consider revising the title V permit during the same time to expedite the overall process and to save resources.

Reasonable Anticipation of Proposed Operating Scenarios

Permit terms and conditions reflecting advance approvals, like all part 70 permit terms and conditions, are subject to the possibility of our objection and public petition under section 505(b) of the Act. A permit containing an advance approval must, therefore, provide sufficient information, and the process for adopting the advance approval into the permit must provide adequate opportunity, for the public and us to determine whether the terms and conditions of the advance approval meet all applicable requirements. Section 70.6(a)(9) refers to “reasonably anticipated” operating scenarios as a way of guarding against the possibility that a proposed

scenario will be too speculative or unlimited to allow for meaningful review by the public and us. To be consistent with the requirement that operating scenarios be reasonably anticipated and to allow for meaningful review of proposed alternative scenarios, both a description of the types and capacity ranges of advance approved equipment and some limitation on the amount of new unit additions should be placed in the permit. Limiting the magnitude of the advance approval can be accomplished by either an emissions cap or a numerical limit on the expected amount of certain types or combinations of new emissions units. Such limits are also necessary to assure that there will be adequate control equipment capacity available and/or that no ambient loading will occur which is unacceptable under NSR requirements. In addition, the worst-case scenario from an environmental protection standpoint should be assumed and defended in communicating any proposed advance approval. This would include describing the combined effects of all changes which would be advance approved and the worst-case use of any ROPs (see section **IV.D.**). The amount of additional communication with the public to convey the nature of the advance approval will vary site-to-site. We recommend that you hold an up-front meeting with all affected parties prior to the start of any formal comment period whenever you believe that there may be potential concern raised over the proposed approaches for flexibility.

Additional Requirements

To provide an ongoing opportunity for you and the public to understand how the source is using its advance approvals, sources also must submit a summary of their on-site logs to you with their semi-annual report of compliance monitoring (unless an applicable requirement requires more frequent submittals, e.g., subpart GGG pharmaceutical MACT). This summary will keep the affected parties informed about actual changes that have occurred under the advance approval since the last reporting period and will match the monitoring report with the relevant applicable requirements under which the data was collected.

Section 70.6(a)(9) affords you the latitude and the duty to impose additional permit terms and conditions to assure that each advance approval scenario meets all applicable requirements. Such terms and conditions must, of course, be practical but may go beyond compliance obligations incorporated directly from applicable requirements. For example, in order to assure compliance with an applicable requirement, you may determine that it is necessary to impose additional safeguards, such as requiring new emissions units or emissions units operating under different situations only to be routed to a particular existing control device with advance approved capacity and operating parameter limitations. You also may require additional details and compliance information in the source's on-site log to ensure that the source's current operating scenario is in compliance with all requirements.

B. Required Content of Title V Applications

General Requirements

As stated in our White Paper for Streamlined Development of Part 70 Permit Applications, July 10, 1995 (White Paper Number 1), applications should contain information to the extent needed to determine major source status, to verify the applicability of part 70 or of applicable requirements, to verify compliance with applicable requirements, and to compute a permit fee (as necessary).” White Paper Number 1 further articulates how part 70 allows you considerable flexibility to make decisions regarding the depth of information required for a complete permit application and its adequacy to support drafting of a title V permit or permit revision.

Similar flexibility exists regarding completeness of applications for advance approvals provided that certain overarching criteria are met. The application must contain information concerning the changes proposed for advance approved sufficient to¹¹:

- (1) identify all applicable requirements associated with the changes;
- (2) design permit terms which assure compliance with these requirements (including any terms needed to demonstrate how the advance approved changes will be matched correctly with all applicable requirements and compliance assurance terms or any terms needed to prevent other requirements from being triggered); and
- (3) bound the magnitude of the advance approved changes.

Required Information

The concept of reasonably anticipated alternative operating scenarios and the requirements in section 70.5(c) requiring “descriptions” of the advance approved activities inherently provide flexibility to you. You have broad authority to require sources to submit information regarding proposed advance approvals. You should not include in the permit those scenarios for which there is insufficient information in the permit application for you to be able to construct permit terms adequate to assure compliance with all applicable requirements. For example, estimates for all emissions units and the replicable means to track emissions changes at these units would be necessary where the source proposes to take a site-wide emissions cap as part of an advance approval. On the other hand, the previously mentioned flexibility allows you to tailor the amount of information required to account for variations in the type of the changes requested for advance approval, the nature of the applicable requirements applying to these changes, and the approaches proposed by the source to assure compliance with these requirements.

The following examples illustrate how information expectations in title V permit applications can be defined to match varying situations. Section 70.5(c)(3) requires that the

¹¹The source may need to submit additional information for certain changes for them to be advance approved under other requirements. For example, if the change being made is one that is subject to minor NSR, these requirements must be met before the change can be approved. The title V permit application must subsequently contain information that the minor NSR process has occurred and that the change(s) or described category of changes has been approved under minor NSR for construction and modification in the future.

permit application contain descriptions of all regulated air pollutants. This does not necessarily require speciated emissions data for each emissions unit since identification of applicable requirements may not depend on such detailed information (as discussed in White Paper Number 1). Depending on the nature of the applicable requirement, you may determine that section 70.5(c)(3) is met for both existing and advance approved emissions units through a list of all units (existing and advance approved) and a qualitative description of the emissions from all of these units. Section 70.5(c)(3) also requires permit applications to contain information on “emissions rate in tons per year (tpy) and in such terms as are necessary to establish compliance consistent with the applicable standard reference test method.” White Paper Number 1 states that we interpret the tpy estimates to not be required at all where they would serve no useful purpose, where a quantifiable emissions rate is not applicable, or where emissions units are subject to a generic requirement. For example, tpy estimates generally do not help establish compliance with applicable standards where all the relevant standards (both currently applicable standards and standards applicable to advance approved units) are written in terms of control efficiency (based on inlet/outlet concentrations) rather than overall emissions rate.

Consistent with the above discussion, descriptions of emissions from units which are being advance approved in the permit may be qualitative where the applicability of a requirement is not based on quantitative emissions data. For example, existing tanks of a certain size may be subject to only a SIP requirement (e.g., floating roof) and can be listed as such in the permit without further detail. The source may include in its application descriptions of existing units and indicate that advance approved units are the same, or the application may contain a description of all existing units which acts as a baseline from which the advance approved changes will occur. However, advance approved tanks of the same size as existing tanks (i.e., those added beyond the description of tanks already in the permit) may be subject to a more stringent NSR-based requirement (e.g., floating roof and double seals). These additional requirements would also have to be in the permit. With this approach, an inspector at a plant site can recognize a tank of the size and type listed in the permit and also determine from the permit the applicable requirement for the new tank (presuming the source sent in the required advance notice).

The total amount of information needed to adequately describe advance approvals will vary in part according to the complexity of applicability criteria found among applicable requirements (e.g., definition of emissions unit, capacity level at which equipment is regulated, materials standards), the types of advance approved changes, and the degree of difficulty in linking changes to the appropriate advance approval scenario. For example, to advance approve emissions units which are subject to standards that regulate individual pieces of constituent equipment (e.g., NSPS applying to magnetic tape coating and polymeric coating) as opposed to regulating an entire coating line as a single entity, the source must identify in its advance approval the types of expected constituent pieces that it may want to add. As another example, the title V permit application would focus on the types of new equipment and other changes which are advance approved to occur in a “clean building” since the primary objective here is to describe each change sufficiently well in order to determine the most stringent applicable requirement that could apply to emissions units within the building and the compatibility of the changes with the

dedicated control device and established monitoring approach. (The clean building approach is discussed in section IV. F.) More detail is needed where the addition of new component equipment potentially causes a shift among the alternative scenarios approved within the permit. In this case, information beyond the described equipment must be provided to convey how to determine which scenario applies. If the result is not obvious from the type or the capacity ranges of the new equipment addition, then the permit must contain specific instructions to aid in replicably identifying the appropriate scenario.

C. Required Content of Title V Permits

This section is included for your convenience to summarize the key elements of an advance approval to be contained in a title V permit. The title V permit, to include an advance approval, must collectively contain the following key elements.

- (1) Identification of each existing emissions unit advance approved to change, a description of the anticipated changes to these units, and identification of the advance approved new emissions units. These descriptions need to be detailed enough to determine all applicable requirements that could potentially apply to the advance approved changes and how other permit terms will assure compliance with these requirements. Several different types of applicable requirements often need to be addressed before a comprehensive advance approval can be accomplished. The level of detail in describing the advance approved change will necessarily increase where more than one applicable requirement and/or control approach could potentially apply to a particular change.
- (2) A list of all applicable requirements applying to the described changes, including any control technology requirements and/or work practice standards (in addition to an emissions cap), monitoring, or testing requirements applying to specific types of emissions units and/or emissions activities. Different applicable requirements applying to the same source can impose significantly different procedural and informational requirements as well as different substantive requirements for limiting emissions and ambient impacts.
- (3) Terms, as needed, to link anticipated changes with all applicable requirements and other permit requirements.
- (4) Either an emissions cap or numerical limit on the amount of expected changes that can occur under the advance approval. For an advance approval to be reasonably anticipated, and to meet the ambient protection provisions of minor NSR, the magnitude of the advance approval needs to be bounded.
- (5) Other terms, as needed to assure compliance with all applicable requirements. These include those to:
 - define the approved capacity of control devices (if no new control devices are being added, the emissions from changes must be accommodated by existing control device capacity);
 - prevent certain other requirements from being applicable to the advance approved changes;

- define all emissions and/or activities to determine compliance under relevant emissions caps for the relevant time periods; and
 - require sufficient monitoring, recordkeeping, and reporting for all changes.
- (6) An advance notice requirement for the addition of advance approved new emissions units and/or new control devices. The permit needs to provide that a notice be submitted to you before (e.g., 7 days) the source adds an advance approved new unit that is individually regulated or that changes the scenario under which the source is operating. The initial description together with subsequent notices (which should be filed with the permit so that anyone examining the permit files will be aware of the changes) act to inform you of the capacity actually being operated at the site.
- (7) A permit requirement to keep an on-site implementation log to contemporaneously record each shift to a new operating scenario and its applicable requirements. This log serves to document for important inspection and enforcement purposes that the source is in compliance with the source's permit terms and conditions.
- (8) A permit requirement to make annual certifications for any changes made during the certification period pursuant to an advance approval contained in the permit.

D. Described Change Categories and Replicable Operating Procedures

Certain types of industrial operations entail making frequent shifts in existing equipment use and/or the addition of new equipment to improve current operations or to produce different products. To the extent such changes impact how applicable requirements apply and/or how they will be met, the number of different operating scenarios can be extensive. Where the possibilities for these changes are so great that it is practical only to describe the conditions that assure compliance and not each of the scenarios in detail in the permit, these different operating scenarios may, in some cases, still be included in title V permits as a described category of advance approved changes. The advance approved changes, applicable requirements, compliance options, and monitoring options could be constructed in the title V permit in a menu format. As discussed below, ROPs and other specified boundary conditions which you approve would define the actual combinations of applicable requirements and compliance terms within the menu that are acceptable as alternative operating scenarios.

Menu of Choices

The potential menu of advance approved changes and their associated requirements would be a combination of:

- (1) a description of the changes that are advance approved to occur at specifically listed existing units and that can occur as additions of equipment (i.e., the types and capacity ranges of future emissions units, new component equipment, and modifications to specifically listed existing emissions units that are advance approved);
- (2) a list of the specific applicable emissions standards or other limits that potentially apply to each new or changed emissions unit;

- (3) a list of all control devices that have been approved by you through performance tests and/or engineering analyses to comply with the applicable standards or limits;
- (4) the emissions and/or parameters to be monitored and data to be recorded associated with each applicable requirement, control device, each process or equipment combination as appropriate, as well as the monitored parameter levels that assure compliance; and
- (5) the testing, recordkeeping and reporting provisions that are approved for to each type of process or emissions source, applicable requirement, and approved control combination.

Replicable Operating Procedures

Whether a change is actually advance approved within the menu depends on certain boundary constraints governing use of this menu format. First, changes within the described category of advance approved changes would also be subject to certain ROPs approved by you into the title V permit for determining the applicable requirements and the resulting compliance obligations for each change. Other ROPs would compare the results of the change with the permit terms which assure compliance. All ROPs must be scientifically credible and their use must not require judgment. That is, the “replicability” requirement means the procedure for the same inputs must be capable of yielding the identical result whether applied by you, the source, a member of the public, or us (i.e., the results from using these procedures are the same regardless of who uses them and when). (see section **VII. B.** for an example of ROP use.) You should add permit terms to constrain the range of inputs to the ROPs as needed to define the approved categories of changes.

These ROPs are contained either in the standard itself or established during the title V permitting process. Where the applicable requirement does not already include such a procedure you could establish one during a title V permit issuance or renewal process or as a significant permit modification. However, in proposing a ROP for inclusion in the title V permit, the worst-case situation should be described in the record supporting the draft permit condition in order that its potential consequences can be fairly understood by all affected parties during the comment period.

Second, in addition to ROP constraints, other boundaries governing which changes are advance approved typically concern:

- (1) the performance capabilities and any capacity limitations on control devices as approved in the permit for compliance; and
- (2) whether the emissions associated with an advance approved change fall within the performance limits of (1) above.

Permit Shield

A source’s compliance with advance approved permit terms which rely on applying approved ROPs (i.e., those ROPs which you approve into the permit) will be deemed compliance

with the applicable requirement(s) but only if the source applies the procedures correctly. However, assuming that your program has a permit shield provision, a permit shield may not extend to the contents of an on-site implementation log, even though the ROPs were correctly applied. The part 70 permit shield may extend only to permit terms and conditions that have undergone prior public and EPA review. Therefore, the shield may not extend to the outcomes of ROP equations, applicability or nonapplicability determinations, or other compliance determinations recorded exclusively in the on-site log.

E. Minor NSR

Enabling NSR Permits

The minor NSR program applies to a large number of changes and is an important consideration in the design of most advance approvals. The program requires review and approval of a subject change before it can be constructed. Unless advance approved changes have already received approval with respect to minor NSR (and this approval is documented in a title V permit), you will have to subject each of them to the minor NSR process before they can occur. This, of course, defeats the purpose of advance approvals. To be useful, advance approval provisions in the title V permit need to include those provisions that have been determined to meet the requirements of the minor NSR program for those changes or a described category of changes to which minor NSR applies.

Ability to Advance Approve Minor NSR

We believe that the ability to advance approve minor NSR requirements critically depends upon the content of your minor NSR program and upon your ability to authorize construction for a described category of changes. That is, you must be able to fashion an advance approval framework first in an NSR permit and then in a title V permit, incorporating the type of advance approved changes, emissions requirements, and the monitoring and control approaches that meets the requirements of your minor NSR program. Initial experience developing flexible permits indicates that many minor NSR programs can be interpreted to allow for advance approvals for at least some types of changes. For example, based on our P4 pilot experiences, most States believe they have the ability in their NSR programs to establish a VOC emissions cap that assures that the combined effect of a described category of advance approved VOC emissions changes and existing emissions at a site will not endanger the ozone standard.

Many minor NSR programs also include a requirement to apply control technology to new and modified units. This control technology requirement may be defined specifically in the SIP (e.g., all storage tanks above a certain size must use a certain type of seal), or in the minor NSR process through a case-by-case control technology determination to reflect available technology at the time of the change, such as State best available technology (SBAT). While we have typically found in our pilot projects that the addition of new units and the modification of existing units can be advance approved with respect to SBAT, the permit must also contain a process for

undergoing a periodic reaffirmation of the SBAT determination for these units to keep it current (consistent with State rules for commencing construction and for the duration/extension of SBAT determinations). For example, consider a thermal oxidizer which you determine meets a SBAT requirement, and assume that determination remains valid for 30 months under your rules. The applicable minor NSR process must be used at the 30-month point to extend the determination for another 30 months. The NSR permit and the title V permit would need to be revised only to incorporate a revised determination.

Synchronizing With Title V

As previously mentioned, the advance approval of changes that are subject to minor NSR must be established in a minor NSR action and then included in the title V permit, unless such advance approvals for minor NSR (which would meet all the substantive and procedural requirements of the minor NSR program) can be established in the title V permit during the title V permit issuance, renewal, or revision process. In any event, we suggest that the issuance of the minor NSR permit establishing the advance approval be synchronized with the corresponding title V action needed to incorporate this result. In some cases, you may require submission of the same information otherwise required for an advance notice not subject for approval merely to see if the proposed new unit would be of the type which was advance approved. If implementing these procedures identifies a change which is not advance approved, then any subsequent issuance or revision of a minor NSR permit to approve it would create a new applicable requirement. If so, the title V permit must be subsequently revised or reopened to incorporate this new approval.¹²

F. Major NSR

Available Strategies for Flexibility

The approach commonly used in P4 pilots to accomplish the advance approval of the NAAQS-protective aspects of minor NSR for VOC emissions changes has been the establishment of a plant-wide emissions cap. A plant-wide cap is appropriate for ozone-precursors since the different locations of emissions within a single plant are unlikely to have an impact on the formation of ozone downwind. As a result, under the actuals-based emissions cap, the PTE of individual changes is not limited. Thus, absent some additional provisions to prevent it, the modification of existing units or addition of new units under this cap may still trigger major NSR.

¹²It is worth noting that the minor NSR process is the typical vehicle to establish permit conditions which, if met, have the effect of exempting changes from major NSR. That is, establishing appropriate PTE limits in a minor NSR permit for a source or a particular change serves to prevent triggering major NSR. Provisions for preventing certain requirements from applying are discussed in sections **IV.G.** and **V.**.

Major NSR applicability is a case-by-case judgment that is made contemporaneously with a change. The preceding strategy for advance approving minor NSR using a plant-wide cap has led to a similar, complementary approach being taken in P4 pilots to address major NSR by assuring that it is not triggered. For this purpose, two different types of plant-wide emissions caps have been taken, depending upon whether the source is currently major or minor for major NSR applicability purposes. Existing sources which are major stationary sources may in certain situations establish a plant-wide applicability limit (PAL). (Section **V.B.** discusses PALs in more detail.) Compliance with a PAL properly established and adjusted, subject to the caveats described in the next section, will prevent major NSR from being triggered for any change (including the modification of existing emissions units and the addition of new emissions units). Similarly, for pilots involving sources which construct in clean areas and are major under title V, but not major for PSD applicability purposes (i.e., an unlisted source type emitting over 100 tpy but less than 250 tpy), a PTE limit set below the 250 tpy threshold has been used. Compliance with this PTE limit assures that changes made by the source cannot be a major modification (since the source must first be major before a major modification can occur).

Advance approval is an alternative strategy to address major NSR. We recognize the ability to approve specific projects under major NSR and then incorporate them into the title V permit, as well as two limited situations under which a described category of ongoing changes can be advance approved under major NSR. These two situations described below are referred to as the “clean building” and the “clean replacements and/or additions program.” Where you opt for these approaches, the major NSR approval would be incorporated into the source’s title V permit as part of an alternative operating scenario that provides the advance approval.

Clean Buildings

A “clean building” is a separate structure or collection point within a plant site containing emissions units that are (or will be in the case of new units) routed to a dedicated, state-of-the-art air pollution control device. To advance approve modifications or new unit additions in a clean building under major NSR, you must determine in the appropriate major NSR permit process that this control device meets the applicable best available control technology (BACT)/lowest achievable emissions reductions (LAER) requirement for the group of activities advance approved to occur within the clean building and for any applicable de-bottlenecked emissions. Since BACT determinations are very situation specific, in PSD areas you may need to require more detail about proposed changes to determine BACT. A major NSR permit containing approval for described changes that might occur in the clean building also must contain a duty to revisit the BACT/LAER decision after each period of 18 months (unless the State’s major NSR program defines another time period) over the duration of the title V permit. This is consistent with our regulations that require for phased construction projects such periodic re-evaluation of BACT decisions prior to commencement of each independent phase of the project (see section 51.166(j)(4) of our 40 CFR part 51 regulations). At the same time of the BACT/LAER re-visitation, you should verify that the air quality impacts, as needed for the clean building, continue to be used in the analyses of other sources in the same impact area. We believe that our current

major NSR rules require you to provide opportunity for public comment for each BACT re-evaluation. Under a “clean building” advance approval, the source may opt to exclude certain insignificant emissions activities from being routed to the dedicated control, but only where legitimate concerns for any exception are demonstrated, the exceptions are clearly identified in the permit, and compliance with each applicable requirement applying to these activities (including BACT/LAER and minor NSR where applicable) is otherwise assured by the permit. Also, for a clean building approval under major NSR to be a component of a comprehensive advance approval in the title V permit, we recommend that the emissions and/or operational limitations under major NSR be streamlined with control requirements from other applicable requirements consistent with White Paper Number 2.

As part of the major NSR approval for a clean building, an emissions cap or independent limits on each emissions unit must be set for it at a level protective of the applicable air quality standards (i.e., PSD increments and NAAQS in attainment areas and impacts less than the significance levels in non-attainment areas). Emissions from ancillary units serving the clean building (such as storage tanks or utilities) must be accounted for in the cap and modeled in determining NAAQS and increment protection. In setting this cap, you must affirm that it also assures compliance for the overall site. The major NSR permit must also contain monitoring which has been determined by you to assure compliance with both the control technology requirement and emissions cap(s).¹³

Clean Replacements Program

The second major NSR approval alternative is the “clean replacements and additions program.” For this program, list in the NSR permit the specific types of existing equipment that may be replaced or added (e.g., turbines, boilers, compressors, degreasers, tanks, emergency generators, etc.). The replacements or new additional equipment can be approved for major NSR, provided certain conditions are met. First, all new equipment must apply the control technology identified by you in the major NSR permit as BACT/LAER. This obligation for replacement units would be enforceable since any unit of the listed type not specifically identified in the permit must be a new unit and, therefore, must meet the BACT/LAER and other major NSR requirements as applicable. As in the case for the clean building, the BACT/LAER decisions would be revisited at least every 18 months (unless the State’s major NSR program defines another time period). Second, an allowable emissions cap, or independent limits on each

¹³The clean building option is described in the context of advance approving major NSR. This option can also be used in situations where minor NSR would apply instead. In particular, consider the case of a nonattainment area where multiple control technology requirements, including those for SBAT, would potentially apply to changes in the clean building. In such a situation, many sources might opt for a PAL (see next section) to prevent the applicability of major NSR. The applicable control technology requirements would again be streamlined to provide the advance approval, but this time the determination would be made in the minor NSR process. Where you choose to grant such an advance approval, you must revisit the SBAT determination for its continued appropriateness consistent with your requirements for doing so.

emissions unit, would be set for the existing and new equipment which is protective of the relevant air quality increments and standards. Effects of any de-bottlenecking must be anticipated in setting this cap and in tracking the subsequent implementation of this option.

G. Other Applicable Requirements¹⁴

NSPS/SIP Requirements

Some changes which are subject to minor NSR will also be subject to other requirements that also apply to criteria pollutants, such as an NSPS and/or a SIP limit derived from a process-weight curve. If you intend to advance approve such changes, you must construct the advance approval of the NSR terms in the minor NSR permit and address the non-NSR requirements as well. You may do the latter by also including them in the minor NSR permit as part of NSR approval, or you may accommodate them by adding them to the advance approval provisions of the title V permit when you add the minor NSR terms to the title V permit.

Section 112 Requirements

Certain applicable requirements that relate to the control of hazardous air pollutants pursuant to section 112 may require additional attention. These include primarily requirements in section 63.5 of our regulations known as the “General Provisions,” and in section 112(g) of the Act (see section 63.40-63.43 of our 40 CFR part 63 regulations). These latter two regulations apply only if a proposed change involves a new or reconstructed major affected source. Where the affected parties wish to pursue an advance approval of new major affected sources subject to a section 112 standard, the substantive requirements for new source MACT usually can be readily advance approved (and may be part of a streamlined approach as well per White Paper Number 2). Where a MACT standard has not been promulgated, a change involving a new or reconstructed major source of hazardous air pollutants (HAPs) must meet section 112(g). A case-by-case MACT determination based on the best controlled similar sources would be made for the change and would be valid only for 18 months (unless a longer period, up to 12 more months, is justified and you choose to grant such an extension) (see section 63.43(g)(4)). Note that such an approach provides greater stability to the permit limit even if a new MACT standard is promulgated after permit issuance (i.e., the 112(g) determination can suffice for MACT purposes for a period of up to 8 years).

Section 63.5 implements the preconstruction review requirements of section 112(i) of the Act and, therefore, imposes certain procedural requirements. Where a new affected source would be added or reconstructed at an existing site after the effective date of any relevant section 112 standard, the source must submit a separate, detailed notification to us (or to you in the case of

¹⁴ Streamlining these applicable control requirements together with those previously mentioned under NSR applying to the same advance approved changes per White Paper Number 2 may reduce the number and type of permit terms needed to address these applicable requirements.

delegated programs) containing, among other things, descriptions of the proposed change, nature of anticipated emissions and emissions points, construction/operation time lines, planned control devices, and expected removal efficiencies (see sections 63.5(d) and 63.9(b)). For each new or reconstructed major affected source, the source also must submit this information in the form of an application and receive approval prior to commence construction. (see sections 63.5(b)(3) and 63.5(e)). We believe that these requirements of section 63.5 can be approved in advance for a described category of new or reconstructed affected sources (whether or not they are major) where the permit would contain:

- (1) a description of the proposed nature, size, design, operating design capacity, and method of the operation for the new or reconstructed affected sources;
- (2) the applicable MACT standard and monitoring requirements;
- (3) the control device(s) determined by you to be capable of achieving compliance for the range of advance approved changes; and
- (4) a duty to submit notices containing more detailed information describing the changes as soon as practicable in advance of making them.

State-Only Control Programs

We support non-federal State, local, and Tribal air control programs such as those which control air toxics beyond the MACT requirements. Where you elect to permit these non-applicable requirements in a title V permit, there are benefits to addressing them as part of a comprehensive operational flexibility solution. Where you choose to do so, the non-applicable requirements in the part 70 permit should, however, be labeled as “State-only “consistent with the part 70 regulations. Options for flexible permit conditions to address non-applicable requirements potentially range widely. For example, consider the case of a typical State air toxics program in which sources must, for subject changes, install SBAT for toxics control and must assure that they do not cause ambient impacts greater than certain acceptable levels determined by you to be protective of health and welfare. In this case, you might grant an advance approval for a described category of changes provided that the emissions associated with such changes are routed to a state-of-the-art control device which is accommodative of these emissions and the resultant emissions cause no ambient impacts beyond those that you have determined to be acceptable using a specified air toxics screening model under conservative assumptions defined in the permit. For other changes (e.g., those that do not pass the screening test), the title V permit could contain a requirement that the source submit to you a more detailed description of the proposed change and its impacts so you can make a detailed case-by-case evaluation under your existing rules and procedures.

H. Additional Requirements for New or Modified Control Devices

There may be instances where a source will seek advance approval of a new or modified control device capable of assuring compliance with all applicable requirements. Advance approval of a control device may be in conjunction with the advance approval of either new or modified

emissions units or it may be the replacement of, addition to, or an increase in the capacity of an existing control device to comply with a future new applicable requirement or to increase options for operating existing equipment.

To grant approval for a new or modified control device under NSR, the source typically must submit to you an analysis showing that the device is properly sized to handle expected pollutant loadings and proposing the initial control device operating parameters (e.g., temperature, pressure, scrubbing liquid flow, etc.) which will provide a reasonable assurance of compliance. These operating parameters must be included in the permit as part of the approval process. Where the applicable requirement is an equipment standard, the source must only demonstrate that the device meets the equipment specifications in the standard.) After installation, operation, and initial performance testing (where required) of a new or modified control device, the source must apply for a permit modification to add to its permit the specific operating parameter level(s) that provide a reasonable assurance of compliance with applicable requirements. The minor permit modification process will be the appropriate process for incorporation of these new parameters in cases where the testing procedures are replicably defined in the permit¹⁵.

Based on our pilot experience to date, we believe under certain circumstances you may advance approve the installation of new condensers and thermal oxidizers, without the information submittal previously mentioned, and the need for a subsequent permit revision. Where a condenser is to be advance approved, ROPs for sizing the load handling capability and determining the operating temperature necessary for compliance must be written into the permit. Where a thermal oxidizer is advance approved, specific operating parameters and design conditions assuring compliance (e.g., 1600°F combustion temperature with a ¾ second residence time to achieve a 98 percent limitation) must be included in the permit. However, if subsequent performance tests show that these initial operating parameters values were not sufficient to comply with applicable requirements, the source may be subject to a compliance violation. On the other hand, if the test results indicate less stringent parameter levels are adequate to provide for compliance, a minor permit modification may be used to modify the levels recorded in the permit, and the source may operate without a permit shield under those less stringent conditions while the permit modification is being approved.

I. Process for Establishing Advance Approvals

Multiple Avenues

¹⁵Such a change would not be caught by any of the minor permit modification “gatekeepers.” The change would not involve a significant change to monitoring nor would it change a case-by-case determination of an emissions limitation or other standard, which are the two most likely gatekeepers that would apply.

The process for establishing an advance approval as an alternative operating scenario may be (1) a title V permit issuance, renewal, or modification process alone, or (2) a title V process in combination with an enabling NSR process where a separate pre-construction approval is necessary to establish advance approval of the project(s). The ability to design an advance approval depends on several site-specific factors (including which changes and applicable requirement combinations require advance approval). We and the public, therefore, should be provided the opportunity to review the use of these concepts for a particular site during the process in which they are established. During public and our review, advance approval provisions must be identified as such (including the worst-case situation(s) that could result) so reviewers will be aware of what changes the source could make in the future and that no additional permit revision will occur at the time of the change. Thus, by design, the opportunity to comment on, and challenge, the changes proposed for advance approval is at the time the provisions are added, not at the time the changes occur.

A benefit of advance approvals is that they can provide the public with a more comprehensive and certain understanding of the source's operation and the type and amount of changes that a source anticipates making during the 5-year term of the permit. This provides an opportunity for the public to comment on the proposed future changes more efficiently and knowledgeably than on an *ad hoc* basis while providing a greater degree of certainty for you, the public, and the source in understanding the overall environmental impact of the anticipated changes.

This up-front opportunity to comment is necessarily provided in the title V issuance and renewal processes. It is required as well where the significant permit modification process would apply. This would always be the case wherever the advance approval for a particular applicable requirement is established in, rather than established elsewhere and then incorporated into, the title V permit. Where the advance approval relative to this requirement is originated in another process and does not involve a title I modification, then the advance approval could typically be brought into the title V permit through the minor permit modification process. This is the appropriate minimum process since changes which are not title I modifications do not fall within any of the described "gatekeeper" provisions in section 70.7(e)(2)(i)(A). These gatekeepers indicate which changes must be processed as a significant permit modification. Such changes consequently will not be subject to public review under part 70 since the minor permit modification process provides only for review by you and us.

Assuring Public Participation

As previously noted, we strongly believe that an opportunity for public review of advance approval provisions is a necessary element in their establishment. Any public comment opportunity in effect under a given applicable requirement must be provided in granting an advance approval with respect to this requirement. However, if the public participation opportunity is not required, we encourage you to ensure that it occurs. Of particular concern are the minor NSR programs which apply to the vast majority of changes to be advance approved but

often do not guarantee opportunities for public review. If advance approved changes were only subject to minor NSR and the advance approval provisions were established after the title V permit has been issued, the advance approval provisions could then be incorporated into the title V permit as a minor permit modification.

If your minor NSR program does not require you to provide public review during establishment of advance approval provisions, then you may instead provide for such review by processing the part 70 permit revision incorporating the advance approval provisions as a significant permit modification (which includes a 30-day public comment period) or you may opt to provide for a public comment period (e.g., 30 days) during the minor permit modification process. If you choose neither of these options, we suggest that you notify the public that an advance approval is being established as a minor permit modification, describe it, and indicate when the public petition period will begin. Recall that title V requires that the public have a 60-day opportunity beginning at the end of our 45-day review period to petition us to object to a permit or a permit modification. The petition must be based on objections made during the public comment period unless the petitioner demonstrates that it was impractical to raise such objections during the public comment period (or the grounds for such objection arose after such period). It would, of course, be impractical to raise an objection during the public comment period if there were no public comment period provided. Using the public petition provisions as the public's opportunity to review adoption of advance approval provisions is not as effective as, and much less preferable than, providing a comment period on the draft permit. If you do not provide the public with either a comment period or a notice of the minor permit modification and the public petition period, we will provide the public with a notice that describes the action, notes its status, and specifies the beginning of the public petition period.

Title V Applications

The establishment of an advance approval should be clearly identified in any part 70 permit application or revised application submitted to us, and a copy of any required demonstration must also be submitted promptly to us along with the application. The latter is true unless we have previously agreed with you not to require it (e.g., the proposed advance approval is of a simple and/or familiar type with no new concerns). Any demonstrations and supporting documentation should also be included in the public record. The submittal to us should be made early in the process (i.e., at the time the source submits it to you, or after your initial modifications to it) to prevent delays during the subsequent title V issuance, permit modification, or renewal process.

V. How Can Permit Terms Prevent Certain Requirements from Applying?

Another operational flexibility tool is the creation of specific provisions designed to prevent changes at a facility from triggering the applicability of certain requirements. In contrast to the advance approval of an applicable requirement, non-applicability limits are taken so that a

change will not trigger a requirement. As previously mentioned, such limits can complete an advance approval by preventing the applicability of requirements which are not advance approved. The most common examples of non-applicability provisions are: (1) a plant-wide limit on PTE to avoid major source status for NSR or the MACT requirements of section 112 of the Act; (2) a PAL to avoid triggering major NSR; and (3) an aggregation of specified changes that is not subject to major NSR..

A. PTE Limits

Potential-to-emit limits taken to avoid major source status must cover all the emissions of the relevant pollutant(s) from the defined source and must be set below major source levels. Title V sources which are already major for one pollutant may take such a limit to avoid major source status for another pollutant. Traditionally, PTE limits have been made enforceable by production limits or material limits on each unit at the plant that emits the relevant pollutant(s). A plant-wide cap is a more flexible framework, which can accommodate changes and fluctuations in emissions at the plant without triggering an applicable requirement that would apply to a major source.

B. Plant-wide Applicability Limits

In addition to a PTE cap, which keeps a source from triggering major source status, we have determined that in some instances another type of non-applicability limit can be used at existing NSR major sources to keep the source from triggering the major modification requirements under PSD and nonattainment NSR. This type of limit is referred to as a plant-wide applicability limit (PAL). As with the PTE limit, the key to the flexibility provided by a PAL is the broad emissions management across the plant site. The approach allows units to be added and modified, and emissions increased within the PAL level, without triggering major NSR. If you include a PAL as part of an advance approval for all other applicable requirements, then the approved changes can occur without any further review or approval from you.

Under the current major NSR regulations, an existing major source proposing a project that will result in a “significant” emissions increase may net out of major NSR by providing creditable actual emissions decreases during a “contemporaneous” period to offset the increases from the project and other creditable increases during the contemporaneous period. Although such sources can avoid major NSR by netting, title V permit terms are nonetheless generated in each netting transaction because any limits on PTE for the project, as well as any decreases used to generate netting credit, must be made enforceable. Therefore, limits taken to avoid “major modification” status under NSR through the traditional netting approach generally still result in the need for additional title V permit conditions.

When a source with a PAL adds or modifies a unit that would increase emissions within the PAL, the source need not undertake a specific netting calculation to avoid major NSR. It need only demonstrate that its plant-wide emissions of the relevant pollutant(s) including the

effects of any changes, remain below the applicable PAL(s). Under our present rules (which are reflected in most SIPs), when a source makes a change that, by itself without considering decreases, results in a significant emissions increase, the source also must sum all contemporaneous increases and decreases from prior changes. If the sum of emissions increases from the new construction and the contemporaneous emissions changes constitutes a significant net emissions increase, the source will be subject to major NSR.

In the proposal for the NSR Improvement rulemaking [61 FR 38249], we proposed PALs as a new method for determining major NSR applicability for sources and solicited comment on a number of PAL issues. We believe that PALs are permissible under existing regulations. Nevertheless, to clarify and to provide more certainty for sources and permitting authorities about the regulatory requirements for PALs, on July 23, 1996, we proposed regulatory language for PALs as part of the NSR improvement rule. Thereafter, in a notice of availability dated July 24, 1998, we indicated that PALs may be characterized as a form of netting and solicited comment on whether the contemporaneity requirement for netting might also need to be applied to PALs. The intent of this guidance is not to present our final positions on these issues, nor is it to prejudge the outcome of that rulemaking. Rather, it is intended to clarify that a PAL approach, while not explicitly defined, may be available under your current NSR rules. The actual extent to which a PAL can be developed in practice in any given State depends on the extent to which a PAL can be developed in the approved SIP and on several site-specific factors. For these reasons, we require that sources proposing use of PALs submit their permit applications directly to you and a copy to the appropriate EPA Regional Office, unless you otherwise provide one to us. To the extent the NSR improvement rulemaking establishes different criteria for the design and implementation of future PALs (e.g., more expansive options to set PAL baselines, relaxation of limits previously taken to avoid major NSR, etc.), the corresponding criteria contained in this guidance is superseded for any situation in which the results of the final NSR improvement rulemaking are applicable. We anticipate that any PALs issued under the current regulations would be reevaluated and updated consistent with the final NSR rule.

Our experience in permit pilot projects has defined the following criteria which help to shape the scope and expectations of PALs that we will support under the current NSR regulations, unless State implementing rules contain more restrictive provisions. Note that these PAL concepts may be applied to non-VOC pollutants as well as to VOC, although there may be significant additional issues to address in minor NSR concerning the spatial and temporal effects of emissions released at the site. However, a PAL may still be authorized provided that the PAL meets all regulatory requirements (including those for minor NSR) and that the changes under the PAL would not cause or contribute to a violation of the relevant PSD increments or NAAQS. We urge you to work closely with us where you opt to pursue development of such PALs.

! Baseline/Pollutant

- S The PAL level must be set at a level consistent with current applicability requirements reflecting historical actuals for the entire plant plus an amount not to exceed the applicable

significance level (e.g., less than 40 tpy for VOC in PSD areas, a maximum of 25 tpy VOC for serious/severe ozone nonattainment areas, and at a level less than 40 tpy VOC for all other nonattainment areas, except extreme nonattainment areas).

- S The historical actual emissions baseline for a pollutant is established from the average of the rate, in tpy, at which the source actually emitted the pollutant during the 2 years preceding the baseline date or a different time period determined to be more representative of normal source operation. Emissions from all units are evaluated for the same representative time period.
- S The PAL would limit emissions from all emissions units at the source, including both new and existing units.

! Enforceability

- S A consecutive 12-month cap rolled monthly is used (except that shorter averaging times should be considered where the source wants to minimize the potential duration of violation).
- S Continuous emissions monitoring systems (CEMS), or CEMS equivalent monitoring, and sufficient recordkeeping and reporting to demonstrate continuous compliance with the PAL (the source must keep a contemporaneous record of all changes which potentially could have triggered major NSR under traditional NSR).
- S The PAL impacts only major NSR applicability requirements; minor NSR requirements as well as other applicable requirements continue to apply.

! Duration

- S The PAL would be in effect for up to a 5-year fixed term as allowed by you.
- S At the end of a PAL term, the source will choose whether to re-establish its PAL under the applicable NSR regulations (Note: We now expect re-established PALs to be consistent with the NSR improvement rulemaking as promulgated) or retire its PAL. If the source opts to retire the PAL, the source must either keep any emissions limit as an emissions cap for existing units or establish individual PTE caps for each emissions unit under the PAL. The total of such individual PTE caps must not exceed the PAL level. Traditional NSR, i.e., contemporaneous netting, would apply to future subject changes. Changes occurring under the PAL would not be included in future netting and traditional NSR).

! Relaxing Existing NSR Terms or Applicable Requirements

- S No section 52.21(r)(4) relaxations are allowed without subjecting changes to major NSR.
- S Certain minor NSR limits can be re-formatted, but only to the extent that they would still meet their intended purpose and be practical in their enforceability.
- S A PAL does not supersede any currently applicable emissions control requirements (e.g., BACT, RACT, NSPS, LAER, MACT).

! Authority

- S** You must be able to interpret your existing NSR regulations to support a PAL. If your regulations allow such an interpretation, you can establish a PAL in another permit (e.g., in a minor NSR permit) and incorporate it into the title V permit.

! Making Changes

- S** No source may begin advance approved construction where the total actual emissions (including any from new or modified units) would exceed the PAL.
- S** A source may add a new unit outside the PAL provided (1) the unit that would not fit under the PAL, and (2) the source first undergoes major NSR for that unit and any other units added earlier from the same project (i.e., there are no significance levels and no netting opportunities). Future modifications to the new unit would be subject to major NSR, without de minimis increases or netting being allowed. Thus, all units added outside of the PAL, regardless of size, would have BACT or LAER limits, and their emissions must be offset in the case of nonattainment areas.

! Permit Shield

- S** Where allowed by your part 70 regulations, you may provide that changes occurring in compliance with the PAL do not trigger major NSR, provided all the conditions of a properly established PAL are met.

C. Aggregation of Specified Changes

[NOTE TO REVIEWERS: The MOM approach described below is under consideration . Prior to authorizing this approach, we must determine whether this approach can be implemented under the current major NSR regulations and guidance. In particular, we must determine that the rules allow for such an approach and that it can be carried out in a manner that is practical in its enforceability. All affected parties must be clear from the terms of the authorizing permit as to what are qualifying changes. For example, inspectors must be able to distinguish the approved changes from other site operations.]

Minor Ongoing Modification

We recognize, in addition to the preceding plant-wide-based strategies (e.g., PAL) for assuring that major NSR does not apply, the potential ability to approve certain limited programs of minor ongoing modification (MOM) under minor NSR. Under this approach, if allowed by your SIP-approved NSR regulations, certain interrelated changes can be grouped for advance approval in such a way so as to be one MOM. In this situation, the types of related activities that comprise this one modification must be specifically listed as part of the advance approval, must

clearly be independent of other non-support activities at the site, and must be correlated with any related emissions generated by support facilities. In order to qualify, the proposed MOM must meet all the relevant ambient-based requirements of your minor NSR program and be approved in the minor NSR process as having an enforceable limit that, throughout the life of the MOM, keeps net increases in emissions from specified advance approved, related changes below the level that is established as representative actuals plus the applicable significance level (i.e., using the same emissions determination procedures mentioned immediately above for establishing PAL baseline). The source must then demonstrate ongoing compliance with its emissions cap using the monitoring and control approaches advance approved for this purpose as part of the MOM. Note that even if this limited opportunity for such up-front advance approval were available, it would not supersede any abilities for sources to demonstrate project independence for applicability purposes under the current regulations.

Where a MOM would be allowed, traditional NSR will continue to apply for changes at support facilities and for other changes at independent units and activities at the same source. Each MOM would count, for netting purposes, as an increase sized at its authorized growth increment. Note that the advance approved growth for the pollutant regulated under this emissions cap would count as a net emissions increase of an amount equal to the relevant significance level for purposes of conducting plant-wide netting or evaluating whether the 25 tpy aggregate increase under section 182(c)(6) of the Act has been exceeded for the same pollutant. If the source later wishes to remove the restriction of “independence,” this action will trigger an analysis as to whether major NSR applies to the changes previously made, assuming the MOM never was in effect.

Cap and Track

We may also be open in pilot projects to exploring other approaches to address project aggregation. One such alternative approach being discussed is a “cap and track method” for a series of individually small VOC emissions changes that are approved to occur under a minor NSR permit where the SIP-approved program would allow for this approach. The changes included in this advance approval would be the group of emissions increases (without regard to decreases) which are subject to minor NSR and whose ongoing cumulative emissions increases over a 5-year moving window never can exceed the level at which an individual new project would trigger the need to evaluate whether major NSR applies (e.g., is the change equal to or greater than 40 tpy of VOC in a PSD area). To act as an applicability screening test, the emissions effect of each subject change (i.e., physical changes or changes in the method of operation) would be sized as if it were a new emissions unit. The permit would contain the necessary terms that enforceably track all these changes and compare their cumulative total to the significance threshold.

When a particular change in combination with the cumulative total of preceding increases would exceed this threshold, the advance approval under the minor NSR permit would no longer be applicable, and a title V permit condition would require the source to receive a revised advance

approval from you prior to making this change. If the new change would trigger major NSR, then the source would do so by obtaining a major NSR permit and title V permit revision before it could make the change. To the extent that the change did not trigger major NSR (considering contemporaneous decreases) but was determined to be related to certain other contemporaneous changes, you would instead issue a new minor NSR permit to authorize the advance approval of another group of increases. In doing so, you would revise the upper bound of the advance approved increases downward to take into account which prior projects must potentially be combined with them. The source would then accumulate future increases until the addition of a particular one would exceed the new trigger level. This event would signal the need for another NSR permit and applicability determination. Potential issues concerning the treatment of de-bottlenecked and ancillary emissions, the sizing of the increases, and the possible longer term applicability of section 52.21(r)(4) must be addressed further for this approach to be viable.

VI. How Can Some Permit Revisions Relevant to Flexibility Be Expedited?

Adding Details to the Approved Monitoring Approach

There may be situations where some relatively minor compliance details for a future project are not known with sufficient specificity to allow an advance approval to be authorized in its entirety. Where such a change can be advance approved to the extent that only these minor compliance details are missing, it may be possible to add these details later through the minor, rather than the significant, permit modification process.

In particular, one of these so-called “gatekeepers” in section 70.7(e)(2)(i)(A) addresses monitoring, recordkeeping, or reporting requirements. Any significant change to such requirements must be processed as a significant permit modification. If a change to monitoring, recordkeeping, or reporting can be considered as not significant and other gatekeepers are avoided, it may be processed as a minor permit modification. For the change to not be significant, the permit must already contain sufficient information about how the future details of monitoring, recordkeeping, or reporting will be determined so as to preclude the need to make significant judgments when making the change or adding the subsequent details.

For example, the addition of new emissions units which are within the described category of advance approved changes but not covered by the monitoring technique described in the permit might be resolved in a streamlined fashion. Under one streamlining technique, a menu of monitoring approaches which are generally well defined, but lack specific values, and the protocols for selecting the appropriate menu choice for a specific situation and for determining the final details for that approach would be approved into the part 70 permit. The permit also would contain the authorization to use the minor permit modification process for incorporating the new monitoring approach, once selected. The minor permit modification treatment is proposed under the theory that the new emissions unit and/or new monitoring approved by you would represent a change which is not significant (i.e., the approved monitoring requirements remain in effect for the

other emissions units and the menu for choosing the new monitoring was pre-approved). This approach would also be consistent with how these changes would have been treated had they undergone minor NSR and then been incorporated into the part 70 permit.

Other Permit Changes

We believe other changes to the permit involving the addition or revision of permit terms which assure compliance could require either the significant or minor modification process, depending solely upon whether the gatekeepers defined in section 70.7(e)(2)(i)(A) would apply. On the other hand, no need for a permit revision would occur from: (1) the use of a ROP established in the title V permit that governs when emissions changes trigger a different applicable requirement also contained in the permit; or (2) the use of another type of ROP which determines whether a new mode of operation would comply with the same applicable requirement. However, where allowed by the applicable requirement, if the source wishes to establish or to revise the former type of ROP, this change would be subject to a significant permit modification. Such a procedure is required, since the change would involve the creation of, or a revision to, a term that the source assumed to avoid an applicable requirement to which the source would otherwise be subject. Similarly, a proposal to establish or to revise a ROP comprised of a mass-balance based equation, established in the title V permitting process, would be required to be processed as a significant permit modification since such a change would effectively be the creation of a case-by-case emissions limitation or a change to one. As mentioned previously in section **IV. I.**, the establishment and/or revision of such a ROP using the minor NSR process followed by the incorporation of this result into the title V permit would trigger the minor rather than the significant permit modification process. Where any proposed changes to a ROP is fundamental to the advance approval, we again strongly encourage you to provide an opportunity for public participation. As previously mentioned, we will provide a notice where the public is not otherwise given a review opportunity.

Use of other ROPs in the permit which determine and revise the value of certain compliance terms which themselves must also be contained in the permit (e.g., parameter levels that define compliant operation) also triggers the need for a minor permit modification (unless the administrative amendment process has been approved for this within your part 70 program). This process is applicable since implementing, rather than revising, such ROPs does not impact any of the minor permit modification gatekeepers. The following examples serve to illustrate the types of permit revisions that might qualify. In the first case, the source knows in advance that it is going to add an emissions unit subject to a specific MACT standard during the term of the permit, but after installation, the source will have to carry out a test of the process and control equipment to set operating parameters. If the testing procedure is determined by you to be a ROP, the subsequent operating parameters may be incorporated via a minor permit modification rather than by adding them as a significant permit modification. The enabling mechanism for this approach is that the procedure (a test in this example) for establishing the operating parameters must be replicable, not involve significant judgments, and must be contained in the title V permit. Thus, anyone executing the procedure will always obtain the same answer for a given set of inputs.

Another example involves the addition of new control equipment, as part of a source's strategy to meet an emissions cap, where the effectiveness of control will not be known until completion of testing. The testing results must then be added to the permit to preserve the enforceability of the emissions cap. Accordingly, a minor permit modification could be used to add compliance details (e.g., revised operational parameters) where the applicable procedures are approved into the permit as being replicable.

VII. How Must Permit Terms Providing Operational Flexibility Be Designed to Provide Compliance Assurance?

General Monitoring Requirements

Section 70.6(a)(3)(i)(B) requires all operating permits to contain periodic monitoring sufficient to yield reliable data from the relevant time period that are representative of a source's compliance with permit terms and conditions where applicable requirements fail to have periodic testing or instrumental or non-instrumental monitoring. Flexible permits must not only meet title V testing or monitoring requirements but also additional monitoring requirements as needed to quantify emissions with certainty. For each applicable emissions limit within an advance approval, a flexible permit needs to contain monitoring sufficient to collect and record valid quantifiable data and the method for transforming this data into the format of the emissions limit. In particular, this section describes how permit terms must be designed to assure compliance with emissions caps contained in the title V permit as part of an advance approval.

To demonstrate continuous compliance with emissions caps, the monitoring approach must define in a replicable manner how to quantify all emissions at the source, including emissions from processes or units that are grandfathered from regulation and emissions from new emissions units which are pre-approved in the permit. The applicable requirements, including any emissions cap, together with other terms which transform the monitoring data collected using the approach, must be defined. A monitoring approach may involve data collection techniques, including recordkeeping, beyond what would be required without a plant-wide emissions cap. More specifically, for a unit included under an emissions cap, the permit must identify for the monitoring approach:

- (1) the monitoring methods and location;
- (2) the monitoring frequency;
- (3) the averaging period;
- (4) recordkeeping; and
- (5) quality assurance and quality control techniques.

The source should assess and be willing to bear the costs associated with performing this additional monitoring before embarking on flexible permit development.

To assure the integrity of an emissions cap, monitoring must either measure all emissions directly or use conservative methods to account for all emissions, including fugitive emissions, from all units on site. A source is not a good candidate for a plant-wide emissions cap if it emits fugitive emissions that are an appreciable portion (e.g., 20 per cent) of the total emissions emitted from the source or that cannot be well quantified.

In addition to ensuring data from required monitoring is obtained, the source must ensure that other records are kept, as necessary, to track flexible source operation. For example, you must ensure that the source keeps updated logs of unit activity or conversion, sends in notices of operation of new emissions units, and keeps logs of how ROPs are applied.

CEMS or CEMS Equivalent Monitoring

While no one monitoring method or type of monitor is appropriate for every situation, we require use of CEMS or their equivalent, whenever either is feasible. As mentioned in the preamble to the Compliance Assurance Monitoring (CAM) rule [62 FR 54922], we prefer the use of CEMS, for they provide data directly in terms of the emissions cap. Continuous monitoring approaches that rely on process, capture system, control device, or other relevant parameters or that use predictive emissions measurement systems (PEMS) may be used in lieu of CEMS when links between the parameters and emissions are established. In developing a linkage between emissions and operational parameters, we believe that you may allow a source to exceed its units' emissions limits during testing without a need for any type of enforcement action, provided that appropriate terms and conditions appear in the permit (e.g., the emissions limitations apply at all times, except during emissions testing to develop operational parameter ranges), and that the source sends you an advance notice to perform such testing. An emissions test linkage notification should identify the proposed test dates, and you should establish test boundaries, such as maximum duration or maximum emissions levels allowed during such testing.

As an alternative to using continuous monitoring systems, sources may use certain non-instrumental methods, such as equations for mass balance or stoichiometric calculations or records of fuel or raw material purchases or usage, provided that those methods are CEMS equivalent (i.e., they provide reliable and timely data which are used to determine compliance with the emissions cap) and you have approved them into the permit as ROPs. As described in section **III.**, existing, multiple emissions limits, such as from NSR permits, may in qualifying situations be converted to a single streamlined requirement using a mass balance or other formula-based approach where appropriate, provided that necessary records are kept.

Interim Use of Emissions Factors

If non-instrumental methods are unavailable, a source may use emission factors developed from site-specific testing. If you or we find site-specific emission factors are not available, the source may use the most relevant emissions factors available, on an interim basis, from unit manufacturers or from relevant available documents, provided that:

- (1) the emission factors are appropriately adjusted (see below) to avoid future compliance issues; and
- (2) a replicable program is identified in the permit to develop an on-site emission factor as soon as possible, but not later than 1 year after the permit action which approves use of the emission factor.

The source may not use emission factors for units with downstream control devices that can accommodate instruments. By using emission factors, the source assumes the risk that the factors may be erroneous. Accordingly, we suggest as a reasonable strategy for assuring compliance that you require the relevant emission factors to be doubled when used to calculate emissions or report debits and halved when used to calculate credits during the interim time that site-specific factors are being used. To determine a site-specific emissions factor, the source will need to conduct on-site emissions testing within 1 year of initial operation under the cap, (unless we have specifically authorized the longer term use of a non-site-specific factor and its conservative implementation assumptions). Once a site-specific emission factor is developed which is representative of on-site emissions, that factor can be used as is (i.e., without adjustment) in tracking emissions under an emissions cap after any necessary permit revision is completed.

Use of Parametric Monitoring

As mentioned above, in certain instances a source may be able to use a parametric monitoring approach to provide data sufficient for tracking compliance with an emissions cap. To determine the range over which a relevant parameter is correlated to emissions, the source will need to conduct on-site emissions testing, typically at the low, mid-level, and high end of the expected operating range. Note that the source owner or operator will need to conduct at least three emissions test runs, each with a minimum duration of one hour and each performed under normal, representative conditions. The equation correlating emissions with parameters within an operating range shall have a correlation coefficient of 0.80 or greater and shall always yield emissions in a quantity greater than zero. Owners and operators are to report their emissions over the selected averaging period as the sum of the emissions correlation and a factor consisting of the Student's t-value at the eighty percent (two-sided) confidence interval¹⁶ multiplied by the sample standard deviation of the parameters obtained during the emissions testing and divided by the square root of the number of valid emissions test runs. You may recognize this summation as the emissions correlation equation's upper confidence limit at the eighty percent confidence level. Use of this value, which tends to overstate emissions, adds a margin of protection that a unit's emissions are not understated. Owners and operators can reduce, but not eliminate, this margin of protection by developing more accurate correlations, reducing operating ranges, and/or conducting more emissions testing. Once a parameter correlation is established, it can be used in tracking emissions under an emissions cap. Source operation outside this range will be considered an exceedance of the emissions cap. The process for resetting a parameter correlation should be

¹⁶Refer to Table 1 of Appendix A of 40 CFR 63, Subpart KK, the National Emissions Standards for the Printing and Publishing Industry, for Student's t-values based on number of valid test runs.

included in the permit; if that process is a ROP, then the parameter correlation can be reset as necessary, provided the source's operating log delineates when the resetting occurs. Otherwise, re-setting must be accomplished through permit revision.

Missing Data

To show continuous compliance, the source must have emissions data to account for all increments of time during which the source's processes operate. These increments include periods of process or control equipment malfunction, data unavailability due to monitoring malfunction or ongoing calibrations or QA/QC checks, parameters outside their correction ranges, startup, or shutdown. A source need not have emissions data during periods of initial shakedown of any new or reconfigured equipment before its commercial operation, since emissions characteristics for that configuration may be unknown prior to a shakedown period. Of course, to the extent that emission characteristics for this equipment are known, then the source should provide emissions data during these periods. Moreover, the emissions cap should be set to account for emissions from these activities. Where monitoring data are not available for such periods, the source must suggest, subject to your approval, a method to provide missing data for compliance purposes. The general method for supplying missing data must be conservative, such that any error associated with it must overestimate emissions, and must appear in the permit. We encourage your approach, where appropriate, to be consistent with approaches taken to address missing data problems in other programs. For instance, you may require a calculated emissions value during a period of missing data to be the average obtained from the last valid reading before the missing data period begins and the first valid reading after the missing data period ends plus 20 percent. Absent credible evidence to the contrary, and provided evidence exists that the source's process continued in a steady-state fashion during the missing data period, you may find this approach acceptable. In no event will a missing data routine, generalized to allow you to make ad-hoc approvals, be acceptable.

Averaging Times for Emissions Caps

You and the source should work together to determine an appropriate averaging period for assuring the practical enforceability of an emissions cap. As previously mentioned, if units with highly variable production activities operate on a batch or inventory basis and are subject to emissions limits with short averaging times, the source must show compliance with these short averaging times, in accordance with the Office of Enforcement and Compliance Assurance's June 1989 guidance. In this case, upon the source making a satisfactory demonstration, you may allow the source to determine emissions over the batch or inventory period, then prorate the emissions over the averaging time, provided that no batch or inventory period exceeds 1 calendar month (see section **III.**). On the other hand, averaging periods for annual plant-wide emissions caps may vary from 365 (or 366) days, rolled daily, to 12 months, rolled monthly. In the event of a violation, liability increases with a lengthening of the defined averaging period, absent credible evidence to the contrary. Any violation of the emissions cap is subject to enforcement action, but we may apply enforcement discretion if the source normally operates within the emissions cap and

if the period of operation outside the emissions cap is short in duration. However, if the source is not in regular compliance within the emissions cap or if the period of operation outside the emissions cap is long in duration, the violation may trigger NSR in addition to other enforcement action consistent with the policy established in the Office of Enforcement and Compliance Assurance's Guidance on the Appropriate Injunctive Relief for Violations of Major New Source Review Requirements memorandum, dated November 17, 1998. We are considering a rulemaking which may impact the duration of violations but a transition period would be provided in that rulemaking to phase any more stringent requirements into effect.

VIII. EXAMPLE APPROACHES

As previously mentioned, the openness of regulatory requirements to advance approval and the relative need for additional flexibility can vary greatly from site to site. This section contains three hypothetical examples of potential approaches at existing major stationary sources wishing to expand current capacity that might be effective in situations typical of those encountered in the P4 pilot projects.

This P4 experience has identified two common situations under which a plant-wide approach to advance approval can be used. A semiconductor manufacturing facility is a good example of the first situation where hundreds of relatively small changes are occurring on an ongoing basis and applicable requirements apply quite broadly across the site. A pharmaceutical production plant characterizes the second situation where several changes per year are still expected but here control requirements often apply to specific groups of equipment. This guidance also provides for strategies that target areas of a plant which have disproportionate needs for flexibility. A magnetic tape manufacturing facility using a clean building approach illustrates a solution to these more area-specific flexibility needs. Table A-1 in Appendix A is included to summarize and compare the three types of approaches.

A. Semiconductor Manufacturing Facility

Plant A is a semiconductor manufacturing facility currently comprised solely of one large factory building (building 1) which contains a myriad of often changing operations, all related to the manufacture of computer chips. Plant A also has some external storage tanks to serve the operations of building 1. For NSR purposes, the key emissions unit for plant A is the entire factory building, since it is the smallest entity that is regulated under any of the applicable requirements that apply to changes made within the building (i.e., such changes are subject only to minor NSR and SIP requirements for reasonably available control technology (RACT) which both apply across the entire building). A highly efficient solvent recovery system controls the emissions from building 1 at a singular point of release in order to meet the RACT requirements. The existing tanks are subject to NSPS subpart Kb. The source anticipates making numerous operational changes, including the reconfiguration and modification of existing equipment and the addition of new equipment. In addition, plant A wishes to advance approve an entirely new factory building (building 2) with similar types of manufacturing operations and changes as those

described for building 1, a thermal oxidizer to control this building, and several new external tanks, again subject to NSPS subpart Kb. In this example, the minor NSR RACT and NSPS requirements applicable to these changes are open to advance approval.

To advance approve the anticipated changes to occur inside either the existing or new factory building, only a categorical description is needed (e.g., reconfigurations, modifications, and/or additions of listed types of semiconductor manufacturing equipment) since emissions caps (see below) are their only relevant requirements. For the advance approval of the tanks subject to NSPS subpart Kb, the permit must contain a description of the types and capacity ranges of tanks being advance approved as well as language linking the new tanks to control obligations and the terms of the permit which assure compliance with subpart Kb. The advance approval of building 2 must also contain permit conditions governing how it will be controlled. In this case, these conditions are for a 98 percent removal efficiency to be achieved by a new thermal oxidizer to be operated at a 1600° F combustion temperature and a 3/4 second residence time. Lesser operating conditions may achieve the required 98 percent removal and, if justified through testing, may subsequently be incorporated into the permit through the applicable permit revision process. The magnitude of the advance approved changes is bounded by the emissions caps described below.

Minor NSR, in this example, applies to most of these changes to assure that no individual change would interfere with the attainment and maintenance of any NAAQS. No SBAT requirement is in effect under this example (but if one were, presumably the stringency of the strategy described below to meet RACT could be adjusted as needed to meet a SBAT requirement). Therefore, it is only necessary to define a plant-wide VOC emissions cap at a level which it is protective of the ozone NAAQS, thus satisfying minor NSR requirements related to VOC and ambient protection. Another emissions cap would be set at the actual VOC emissions level representative of source operation plus the relevant growth increment so as to qualify also as a PAL. In this situation, these two caps can be streamlined into the more stringent one. Therefore, compliance with the streamlined emissions cap advance approves a wide category of changes under NSR since this both safeguards the ozone NAAQS and prevents changes occurring under it from triggering major NSR. Note that these caps apply to the entire site, including the potential combination of buildings 1 and 2 and all new and existing tanks. A third emissions cap of a different type is also required to assure compliance with the RACT requirements that apply to each building dedicated to semiconductor manufacturing operations. In this case, an emissions cap reflecting use of the existing state-of-the-art solvent recovery system and expressed in terms of pounds of VOC emissions per unit of production (e.g., square centimeter of chips produced) per relevant unit of time is determined to meet the RACT requirement. Finally, the source in this example has opted for a pair of emissions caps for HAPs over the entire plant to become a synthetic minor source for such pollutants and thereby avoid the potential applicability of section 112(g) of the Act. These two caps are fashioned both to preserve business confidentiality and to prevent the source from being a major source of HAPs. The first HAP cap guarantees that the sum of all organic HAPs is under 10 tpy while the second guarantees the same result for particulate HAPs. Since the source only can emit HAPs in either of these two groups, these caps

in combination prevent any individual HAP from exceeding the 10 tpy threshold or the combination of HAPs from exceeding 25 tpy.

To determine compliance with the emissions caps, the permit must contain appropriate production and emissions tracking procedures. The monitoring approach supporting the advance approval uses several types of site-developed mass balance-based calculations which are based on appropriately conservative assumptions in order to verify whether emissions remain under the respective caps. In particular, pollutant content from the warehouse inventory materials is tracked across each building, and all material is assumed to be emitted, after allowing for verified waste removal and the tested effect of control devices. This approach was determined to be CEMS equivalent monitoring.

No notice would be required under title V when making the advance approved changes authorized to occur within the existing building, since there would be no new emissions unit being added and no shift to an alternative scenario is possible. Only if the new external tanks or new factory building 2 were added, would the advance notice requirement be triggered. Similarly, only new log entries to document any new emissions units are required after the entry initiating the use of building 1's advance approval. This is true since again no other advance approved change can cause a shift to another operating scenario. The required monitoring would continue to track the flow of aggregate emissions in the building to verify compliance and notably not to record the specific effects of individual changes occurring inside the same emissions units.

B. Pharmaceutical Production Facility

A second situation common to pharmaceutical production is similar to the previously described example in that the source anticipates making frequent and varied changes across the entire site. In this case, however, in addition to being subject to the same types of ambient and applicability constraints of NSR as described in the first example, the pharmaceutical facilities can also be subject to several, often overlapping, requirements which impose differing amounts of required emissions control (e.g., MACT, RACT, SBAT). Moreover, the MACT standard (i.e., subpart GGG) can apply in varying ways, depending upon how the source operates. As in the first case, a plant-wide VOC emissions cap(s) would be employed to bound the magnitude of the advance approvals and to address the ambient loading concerns associated with minor NSR and the applicability concerns associated with the major NSR. The permit again must contain an adequate compliance monitoring/emissions tracking infrastructure to assure the practical enforceability of these caps.

For the remaining control technology requirements, two approaches are available to assure compliance. One approach is to establish a described category of changes relying on certain ROPs to match each change to its specific emissions reduction requirements under the MACT standard and other ROPs to select a control approach that will assure compliance with those requirements. This approach may be useful where compliance with the MACT standard will also address any other applicable control obligations otherwise applying to the advance approved

changes. A second approach is necessary to address situations where compliance with the MACT standard may not always be adequate to meet other control technology requirements. In this situation, you instead can examine all the applicable control requirements that apply to emissions units/streams feeding into a common control device, select the most stringent applicable requirement, and assure that the available control device(s) operates at a performance level meeting the most stringent requirement (i.e., the “clean building” scenario applied across the entire pharmaceutical production site).

To illustrate the first approach, consider the operations of pharmaceutical plant B using non-dedicated equipment to produce several types of different products. In this example, plant B is located in an attainment area for all pollutants and wants to advance approve a wide range of anticipated changes. The changes include reconfiguring and relocating existing process equipment and/or adding new equipment,¹⁷ and adding a new thermal oxidizer to allow more process changes to occur. In addition to the minor NSR requirements that again apply for this example in the same fashion as those described in the first example, subpart GGG also applies to such changes. The source has two control devices, a thermal oxidizer and a condenser, available to meet its control obligations under subpart GGG. Plant B wishes to design its permit such that it will be able to adjust its control strategy as its operations vary so as to take advantage of the different options for control available under the MACT standard.

The additional flexibility needs in this case are met through a menu of choices that establishes a described category of changes in the title V permit. To establish the advance approval for MACT purposes, the permit describes the changes which are advance approved and then authorizes them to occur. In doing so, the permit first lists the current inventory of non-dedicated process equipment and the snapshot of how it is currently arranged for production. Second, the permit identifies the types and capacity ranges of future emissions units and of new component equipment that are being advance approved. The permit for plant B also advance approves the addition of a new thermal oxidizer of a particular capacity range, provided that it meets stringent design and operating constraints (i.e., 1600° F combustion temperature, 3/4 second residence time). Third, the permit contains language authorizing the reconfiguration and modification of the listed existing equipment and the addition of any new listed equipment so as to modify the baseline processes or to add entirely new ones. The overall magnitude of this advance approval is bounded by the VOC emissions cap already established in the permit to address criteria pollutant flexibility issues.

As described in section **IV. D.**, the menu contained in the permit consists of the identified existing units and advance approved changes coupled with their possible requirements under the MACT standard and the control and monitoring options to meet these obligations. The appropriate combinations of choices must be consistent with the stated capacity limitations of the

¹⁷For the sake of simplicity, we have restricted this case example to addressing only process changes and the advance approval of a new thermal oxidizer. Other types of concerns (e.g., wastewater, tanks, LDAR) must also ultimately be addressed in designing comprehensive advance approvals.

two control devices (i.e., the operating envelope for the devices over which they have been demonstrated to achieve compliance) and by a series of ROPs approved into the permit for this purpose. Applicability ROPs (i.e., those that size and sort changes relative to their compliance obligations) operate on any potential process change¹⁸ to determine which level of control under subpart GGG is required (e.g., 98%, 93%, or recordkeeping for process vents). A combination of other ROPs perform additional functions that assure compliance with the required levels.

The permit also requires the source to perform several implementation duties. In particular, plant B must make only advance approved changes to its operations and use the approved ROPs on each process change to determine its obligations and compliance status. Similarly, the source must maintain an OSIL to record contemporaneously the shifts to new alternative operating scenarios and must operate consistent with it. Finally, plant B must file advance notices (e.g., 7-day) before constructing and operating new processes using new equipment (i.e., new emissions units) or adding new component equipment that shifts operations to a new scenario.

To illustrate ROP use and its connection to monitoring and recordkeeping, consider the addition of two new units to an existing pharmaceutical production line within plant B, aimed at increasing the yield of a certain process. To determine the applicable control scenario for the two-unit addition, given that it would be controlled by the existing condenser, the permit contains a series of approved ROPs. A first equation in the permit would size the two-unit addition in terms of uncontrolled line emissions from the changed process vents, while a second equation in the permit would determine whether the vents remained subject to the 93 percent control requirement rather than being subject to 98 percent control. A third ROP would then determine the exit temperature of the condenser needed to achieve the required level of control. The ROP (i.e., equation) defining condenser operation would continue to be employed in an ongoing fashion to define the required exit temperature level and to compare it to the data obtained from a continuous parameter monitoring system in order to determine compliance status with the applicable percent reduction requirement. The results of using ROPs must be contemporaneously recorded as part of the required monitoring data and of the on-site log each time that the related change would cause a shift to a new alternative operating scenario or as otherwise required by subpart GGG.

¹⁸A process change at a pharmaceutical facility for purposes of this example is defined as any of the following:

- (1) The addition of new process equipment.
- (2) The introduction of a new process.
- (3) The modification of an existing process such that one or more of the following occurs:
 - The process emits a HAP that it previously did not emit.
 - The uncontrolled emission rate (in pounds per hour) of any HAP increases for any emission episode in the process.
 - Total per-batch uncontrolled emissions of any HAP for the process increases.
- (4) An increase in projected production for a process where the revised production levels would trigger a new applicable requirement.

The next example included to describe targeted flexibility approaches also serves to describe how the clean building concept might be implemented for those operations at pharmaceutical plants which are ducted to a single state-of-the-art control device. Significant reductions in the requirements for implementation logs would result where the clean building rather than the ROP-based approach is used.

C. Magnetic Tape Manufacturing Facility

To focus the flexibility strategy within a particular area of a plant, a company could propose the advance approval under major NSR of a clean building. That is, the advance approval would be for the combination of activities occurring in this building which are totally collected and ducted to a state-of-the-art control device, provided that the device is operated to meet the most stringent applicable requirement which could apply to existing, modified, and/or new equipment within the building and the source conducts sufficient monitoring which assures compliance with this streamlined limit (see White Paper Number 2).

As an example, plant C is a magnetic tape manufacturing facility proposing a clean building strategy for its location in a PSD area. Plant C consists of two large production buildings (i.e., buildings 1 and 2) each with seven process lines, a power boiler, and storage tanks for raw materials. In particular, facility owners propose this strategy for building 1, since they desire the ability to rearrange, modify, and/or add process equipment (including new lines) within this building to address anticipated demand. Five of the process lines in building 1 are subject to MACT standards (i.e., subject to subpart EE which requires a 95 percent emissions reduction); the other two lines have no regulation and are uncontrolled with respect to HAP or VOC emissions. Two of the first five lines are also subject to the NSPS (subpart SSS) which require up to 95 percent control from coating lines and mixing and separation vessels. Another MACT standard for paper and other web coatings is anticipated to apply to many of these operations. PSD under major NSR requires a case-by-case BACT requirement for major modifications. The existing storage tanks are grandfathered from NSPS.

To secure advance approval under the several varying control technology requirements for the anticipated types of changes within building 1, the source proposes that the highly efficient (e.g., 96 percent) solvent recovery system controlling building 1 would qualify it as a clean building. Under major NSR, the permitting authority determines that BACT is met by a 96 percent reduction requirement. Another determination is required under section 112(g), since the source opted to meet this requirement in order to address certain uncertainties associated with the future MACT for paper and other web coatings. The permitting authority determines that the case-by-case MACT requirements of section 112(g) is also met by a 96 percent reduction requirement. Accordingly, consistent with the guidance for establishing streamlined limits in White Paper Number 2, a 96 percent reduction level is determined to assure compliance with the most stringent control technology requirement among those that apply (i.e., MACT subpart EE, NSPS subpart SSS, BACT, 112(g)) and is required for all activities in building 1 for it to qualify as a clean building. Since the BACT decision must remain current, the source must submit an

application to revisit its technology determination every 18 months. A growth increment of 100 tpy VOC emissions beyond current actual emissions levels was awarded to the plant site. This increment is determined during the major NSR permitting process as appropriately protective of ambient standards.¹⁹

The clean building, with its single emissions outlet from the control device, would be continuously monitored. This continuous monitoring system would provide emissions data for the predominant VOC that would be used to calculate control device destruction efficiency and compliance under the plant-wide VOC emissions cap. Any increased VOC emissions from the storage tanks and boiler resulting from changes made in building 1 also need to be determined and tracked to verify that the VOC emissions cap is not exceeded.

Notices are required when adding new emissions units (as defined by any of the applicable requirements) or new component equipment which acts to shift operating scenarios inside the clean building. Log entries are also required for these changes. The entries themselves would be less complicated than those in the ROP-based pharmaceutical example, since the control strategy and the monitoring approaches for the clean building remain in place.

¹⁹This example features a clean building approach in which a described category of changes bounded by a 100 tpy VOC growth increment are advance approved for all applicable requirements, including major NSR. If the source instead were awarded a plantwide VOC emissions cap that contained a 39 tpy growth increment over its representative actual emissions (i.e., a PAL), then the source could make changes under this cap without triggering major NSR. The source would still be limited to making changes within building 1 unless it also proposes to make building 2 a clean building, since the advance approvals with respect to the other applicable requirements are limited to the clean building changes. However, in either case the streamlined limit for a clean building would not consider the BACT requirement (which is not applicable in this case). Accordingly, the need to revisit this determination and the timeline for doing so would depend on whether a SBAT requirement would apply and the State requirements for re-evaluating SBAT decisions.

APPENDIX A

COMPARISON OF EXAMPLE FLEXIBLE PERMIT APPROACHES

This Appendix summarizes the discussion in the text of three hypothetical existing major sources and the approach to permit flexibility that may be appropriate for each (see section VIII). The three example facilities are described briefly below, along with their applicable requirements, the typical types of changes each must make, and the basic elements of the associated flexible permit approach. This description is followed by Table A-1, which compares the requirements of the example approaches.

Plant A: A semiconductor manufacturing facility currently consisting of a single large factory (building 1). Applicable requirements include minor NSR and RACT requirements that apply across the entire building 1, expressed in terms of pounds of VOC per square centimeter of chips produced (lb/cm²). The existing solvent storage tanks at the facility are subject to the NSPS (subpart Kb). The facility must frequently reconfigure and modify existing equipment and add new equipment to produce new or modified products. The facility also plans to add a new factory (building 2) and new external solvent storage tanks subject to the NSPS. The flexible permit approach consists of establishing VOC and HAP emissions caps over the facility at levels that assure NAAQS protection under minor NSR, no triggering of major NSR, compliance with the RACT limit, and synthetic minor status under section 112. These caps also serve to bound the magnitude of the advance approval. Because of the broad protection provided by the caps, the source can advance approve many kinds of process changes through a categorical description of the types of changes and equipment additions that are expected.

Plant B: A pharmaceutical production facility consisting of non-dedicated process equipment that can be interchanged and reconfigured for different processes. Applicable requirements include minor NSR and the pharmaceutical MACT (subpart GGG). The facility needs to make a wide range of changes, including relocation and reconfiguration of existing equipment and addition of new equipment. In addition, the facility wishes to add a new thermal oxidizer. The flexible permit approach consists of a plant-wide VOC emissions cap established at the appropriate level to assure NAAQS protection under minor NSR and no triggering of major NSR. The facility must develop and include in the permit replicable operating procedures (ROPs) that ensure that advance approved process changes are matched with the applicable MACT requirements and that the changed processes meet the MACT standard. An on-site implementation log (OSIL) is required to document the current operating scenario and emissions units (EUs) connected to it.

Plant C: A magnetic tape manufacturing facility consisting of two large production buildings. Applicable requirements include PSD, the magnetic tape NSPS (subpart SSS), and the upcoming paper and other web coating MACT. In building 1, the facility needs to rearrange, modify, and/or add process equipment (including new lines) to address shifting market demand. For building 1, a “clean building” approach is proposed: all VOC emissions from the building will be captured and routed to a 96-percent efficient control device. Because this control device meets all existing and

anticipated applicable requirements to control VOC and HAP emissions, the permit can advance approve under major NSR (PSD in this case) a full range of process changes based on a described category of the anticipated changes that will be controlled by this device without exceeding its capacity. A VOC emissions cap will ensure compliance with an established growth increment (i.e., the amount of new emissions permitted for the source during major NSR) and bound the advance approval.

TABLE A-1. COMPARISON OF EXAMPLE APPROACHES

Case	Permit Content	Log	Monitoring Data	Notices
Plant A	<p>! VOC Emissions Cap (rolling 12-month limit) Streamlined To Address:</p> <ul style="list-style-type: none"> - Major NSR applicability (PAL) - Minor NSR (NAAQS protection) <p>! VOC Emissions Caps Across Each Building To Address RACT Limit (lb/cm² chips produced)</p> <p>! HAP Emissions Caps (rolling 12-month limits) To Address MACT Applicability:</p> <ul style="list-style-type: none"> - < 10 tpy particulate HAPs - < 10 tpy organic HAPs <p>! Description of Advance Approved Changes</p> <ul style="list-style-type: none"> - Reconfigurations, modifications, and additions of semiconductor equipment and operations within each factory building (list of general types and capacity ranges) - Subpart Kb tanks (types/capacity ranges to be added outside factory buildings) - New factory building 2 (to be added in combination with a new thermal oxidizer designed to have 3/4 sec residence time at 1600°F) <p>! Duties</p> <ul style="list-style-type: none"> - Make only advance approved changes - Make initial entry in OSIL and operate consistent with it thereafter for building 1 - Make new OSIL entries for new EU additions - Provide advance notices as required for new EUs - Conduct mass balance-based monitoring 	<p>! One Initial Entry for Building 1—no additional entries required because building remains subject to fixed applicable requirements.</p> <p>! Entries Required for New EUs (e.g., external tanks, new building 2)</p>	<p>! VOC Emissions Mass Balance—relating VOC content of materials taken from inventory to VOC destroyed by controls (as established by testing), with accounting for wastes</p> <p>! Production—measured in cm² chips produced.</p>	<p>! Advance Notice for New EUs</p> <ul style="list-style-type: none"> - construction of new factory building 2 - construction of any new tanks subject to Kb <p>! Other Notices—as may be required under other applicable requirements</p>

TABLE A-1. COMPARISON OF EXAMPLE APPROACHES (continued)

Case	Permit Content	Log	Monitoring Data	Notices
Plant B	<p>MACT Standard</p> <ul style="list-style-type: none"> ! Advance Approval Authorization of Specified Process Changes (see footnote 17) ! Process changes involving existing equipment (list and describe all existing equipment) <ul style="list-style-type: none"> – Process changes involving new equipment (list types and capacities of preapproved equipment) – Addition of one new thermal oxidizer to be operated with 3/4 sec residence time at 1600°F combustion temperature ! Menu of Alternative Operating Scenarios <ul style="list-style-type: none"> – Detailed baseline scenario (per NOCSR) - for each currently operating process, list equipment and process vents, applicable emissions limit, compliance method, and monitoring method and compliance trigger – List of approved process equipment (as described above) – List of applicable emission standards (e.g., aggregated existing process vents controlled to 2000lb/yr or 93%, some individual vents controlled to 98%) – Approved existing control/treatment devices <ul style="list-style-type: none"> • Capacity • Monitoring trigger levels – Monitoring, recordkeeping, reporting, testing requirements (40 CFR 63.1257, 63.1258, 63.1259, and 63.1260) ! ROPs <ul style="list-style-type: none"> – Formulae for analyzing changes to determine emissions and applicable emission standards [e.g., 40 CFR 63.1257(d)(2)(i)(A) - (H)] – Comparing changed emissions to approved capacity of control equipment [e.g., 40 CFR 63.1257(a)(1)] – Comparing results to MACT standard ! Duties <ul style="list-style-type: none"> – Make only advance approved changes – Use ROPs appropriately to evaluate process changes – Maintain contemporaneous OSIL and operate consistent with OSIL – Quarterly OSIL reports (summary of changes) – Provide advance notices as required for new EUs and certain new 	<p>MACT Standard</p> <ul style="list-style-type: none"> ! Detailed Current Scenario of Processes in Operation (updates to OSIL as needed to record changes to baseline scenario) <ul style="list-style-type: none"> – Description – Equipment used – Subject EUs – Applicable emissions limit(s) – Compliance method (e.g., control w/ capacity and loadings from other processes) – Monitoring method and compliance trigger level ! ROP Documentation– calculations (some inputs may be CBI) and results ! Certifications of Proper ROP Use 	<p>MACT Standard</p> <p>Example Requirements:</p> <ul style="list-style-type: none"> ! Thermal Oxidizer <ul style="list-style-type: none"> S monitor temperature in combustion chamber (15 min. readings and daily average) S establish compliance trigger during performance testing S record all monitor readings and average values S semiannual compliance report ! Condenser <ul style="list-style-type: none"> – monitor temperature at exit (15 min. readings and daily average) – establish compliance trigger by ROP – record all monitor readings and average values – semiannual compliance report 	<p>MACT Standard</p> <p>Advance Notices for:</p> <ul style="list-style-type: none"> ! New Process with All New Equipment (i.e., a new affected source) ! Modified Processes Using New Component Equipment–when the modification involves a shift to an alternative operating scenario

TABLE A-1. COMPARISON OF EXAMPLE APPROACHES (continued)

Case	Permit Content	Log	Monitoring Data	Notices
Plant B (cont)	<p>VOC Emissions Cap</p> <ul style="list-style-type: none"> ! Rolling 12-Month Limit—streamlined to function as a major NSR PAL and to provide minor NSR NAAQS protection ! No Additional Description of Advance Approved Changes Beyond That Provided for MACT Advance Approvals 	<p>VOC Emissions Cap</p> <p>Additional OSIL requirements apply only to addition of a new EU advance approved under minor NSR.</p>	<p>VOC Emissions Cap</p> <ul style="list-style-type: none"> ! Process Vents from Each Process <ul style="list-style-type: none"> – Determine Uncontrolled Emissions per Batch – Apply Control Efficiency per Batch – Track Number of Batches ! Storage Tanks (TANKS 3.1 computer program) ! Fugitive Emissions <ul style="list-style-type: none"> – Wastewater (ToxChem computer program) – Equipment Leaks (LDAR program) ! Aggregate VOC Emissions From All Individual Points Across the Site on a Monthly Basis 	<p>VOC Emissions Cap</p> <ul style="list-style-type: none"> ! Advance Notice Required for Any New EU Advance Approved under Minor NSR (i.e., meets the cap) ! Other Notices—as may be required under other applicable requirements

TABLE A-1. COMPARISON OF EXAMPLE APPROACHES (continued)

Case	Permit Content	Log	Monitoring Data	Notices
Plant C	<p>Clean Building Emissions Limit</p> <ul style="list-style-type: none"> ! Streamlined State-of-the Art Approach—duct all regulated vents to control that meets all applicable requirements [112(g), PSD BACT, MACT (EE), NSPS (SSS)] ! Detailed Description of Baseline Equipment and Applicable Requirements (intended as a reference point) ! Description of Advance Approved Changes—list of general equipment and associated applicable requirements ! Duty to Revisit Advance BACT Determinations—submit analysis to Permitting Authority every 18 months ! Duties <ul style="list-style-type: none"> – Make only advance approved changes S Maintain contemporaneous OSIL/operate consistent with OSIL S Provide advance notices as required (see Notices), e.g., 7-day advance notices <p>VOC Emissions Cap Rolling 12-month limit to address NAAQS protection</p>	<p>Clean Building Limit</p> <p>Entries required for each addition of new equipment which is either (1) a new EU or (2) component equipment that causes a shift to a new applicable requirement. Each entry is minimized because the source remains in one fixed mode with respect to monitoring and control approach.</p> <p>VOC Emissions Cap Additional requirements only for addition of new EUs advance approved under major NSR.</p>	<p>Clean Building Limit</p> <ul style="list-style-type: none"> ! Inlet/Outlet Monitoring <ul style="list-style-type: none"> – VOC Concentration with CEMS – Volumetric Flow with CEMS ! Records of Monitoring Data and Calculations ! Semiannual Monitoring Reports <p>VOC Emissions Cap Aggregate VOC emissions from all individual points across the site on a monthly basis</p>	<p>Clean Building Limit</p> <ul style="list-style-type: none"> ! Advance Notice Required for: <ul style="list-style-type: none"> – Any new equipment that is a new EU – Modified processes using new component equipment when the modification involves a shift to an alternative operating scenario ! Other Notices—as may be required under other applicable requirements <p>VOC Emissions Cap Additional notices for any new EU advance approved under major NSR</p>